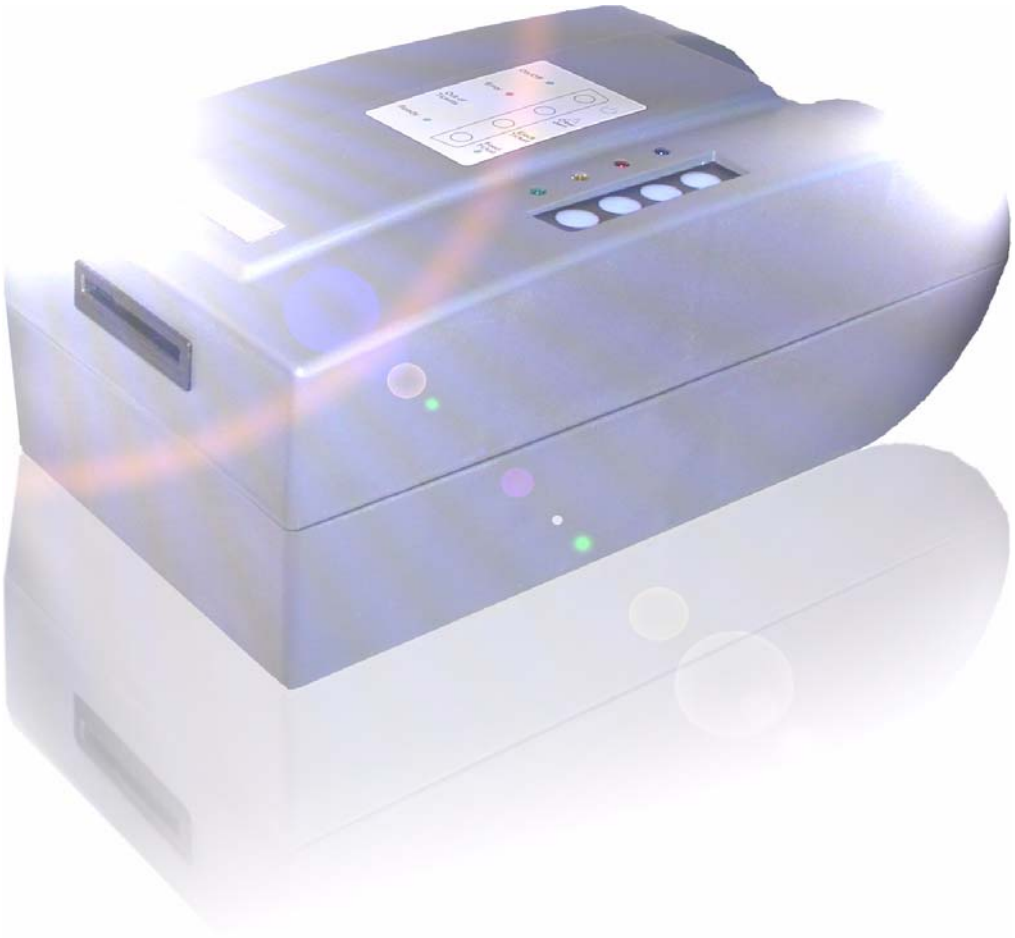

Zebra® TTPM3™

Kiosk Ticket Printer/Encoder

Service Manual

P1011350-001

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1 INTRODUCTION

1.1 About this manual

This manual describes the design and function of the TTPM3 Ticket Printer/Encoder, which creates credit-card-wide documents with magnetic encoding and thermal printing.
The manual also contains maintenance instructions and replacement parts lists.

1.2 Updating

This manual will be updated as, from time to time, printer functions and features may be added or amended. You will always find the latest edition on our web site (www.zebra.com).
If you require functions not found in the manual edition at your disposal, you are welcome to consult one of our offices for information.

2 PRODUCT PRESENTATION

TTPM3 Ticket Printer/Encoder creates credit-card-wide tickets with magnetic encoding and thermal printing.

2.1 Document printing

TTPM3 uses the direct thermal printing technique and can print the entire surface of the ticket with text, bar codes, or graphics, or any combination hereof. Text block position and orientation is software programmable as is the character size.
The data sent to the printer is converted to a ticket image which is stored in the unit until an ”All Clear” software command is sent, or the power is turned off/on.

2.2 Magnetic encoding

Three magnetic tracks can be encoded: Either with standard low coercivity recording, or optional “household-magnet proof” high coercivity recording.

ISO track version[1]: ISO track 1 at 210 BPI
ISO track 2 at 75 BPI (Bits-Per-Inch)
ISO track 3 at 210 BPI

Center track version: 7 mm wide center track at 75 or 210 BPI
The TTPM3 can be used for encoding on one, two, or three tracks simultaneously.
Read-after-write is automatically performed.
You can also enter an already encoded ticket into the TTPM3 and read the magnetic stripe and output the data to the host computer.

2.3 Document handling

TTPM3 printer has two rear inputs for ticket stock. Both can take continuous ticket stock like fanfold or roll ticket material. You can configure the printer so that one is used for continuous stock and the other is used for handfed tickets.
There is an optional front load mechanism that makes it possible to load single tickets through the ticket exit. This replaces the upper ticket entry at the rear of the printer. In addition to this, the front load has a wastebasket function for redirecting used or invalid tickets to a wastebasket, thus preventing useless tickets being presented to the customer.
You can select to partially eject the ticket so that the customer takes it from the frontload mechanism, or fully eject the ticket so that it falls into a tray. You can also select that a ticket should be redirected to a wastebasket as described above.

The TTPM3 comes as desktop printer, or as an OEM printer mechanism for kiosk applications.

[1] Encoding in ISO standard format, or in hexadecimal format (bit-by-bit), is software selectable.

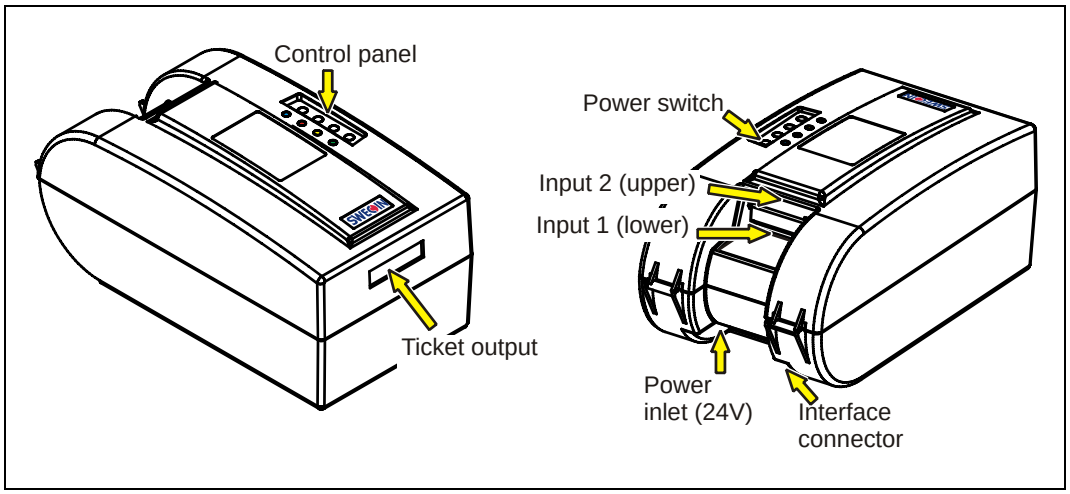


Figure 1. Desktop printer

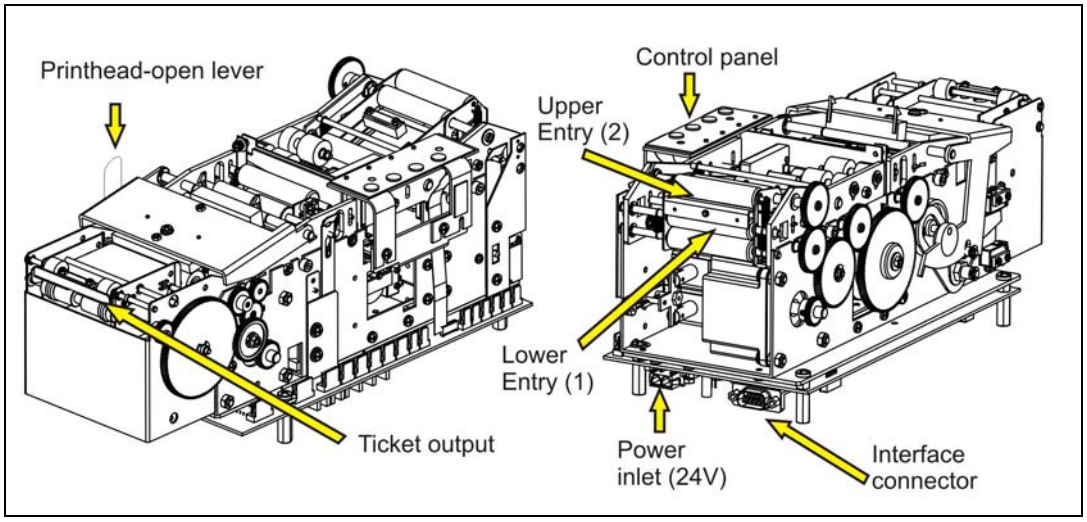


Figure 2. OEM printer mechanism

The figure below shows the main parts of the OEM-type printer/encoder unit with attached front load mechanism. Items in the figure, but not pointed to belong to the basic module.

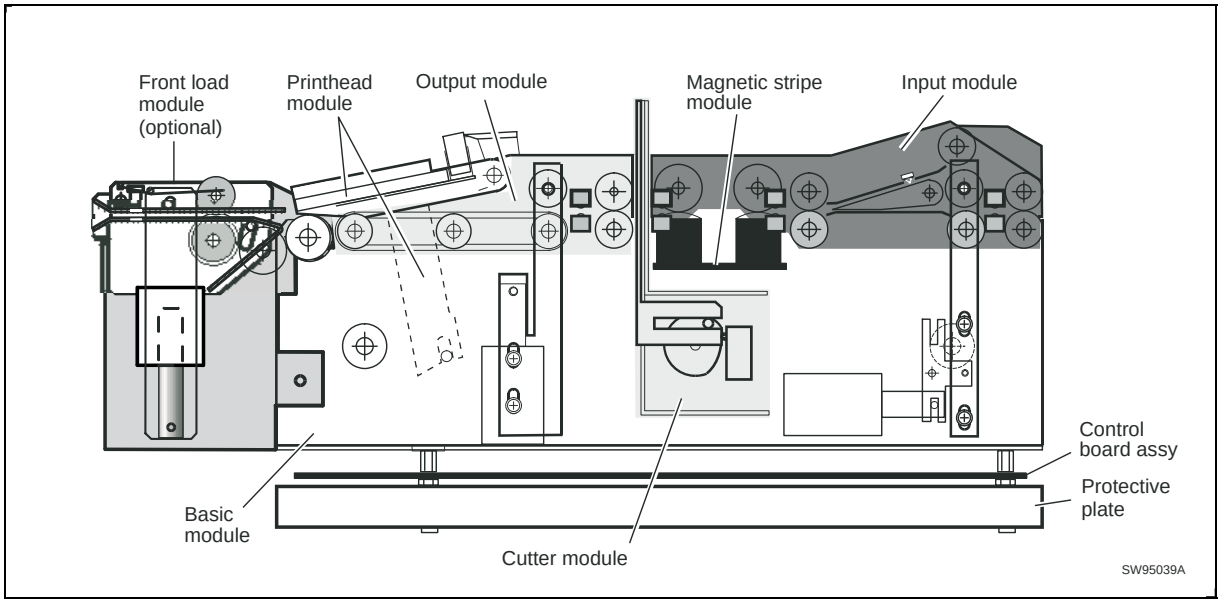


Figure 3. TTPM3 modules

3 FUNCTIONAL DESCRIPTION

The TTPM3 connects to a host computer, for example a workstation or a PC, through the RS232 serial interface or optional Ethernet.
The host controls the operation of the TTPM3 by means of software commands. A microprocessor on the control board interprets the commands and generates the necessary control and data signals.
Besides the on-line mode, you can force the TTPM3 into a self-test mode producing a printed and encoded ticket containing information about firmware version.

3.1 Standard TTPM3 model

The figure below shows important parts of the standard printer/encoder unit. The shaded lines indicate which stepper motor that drives the platen and the various feed rollers.

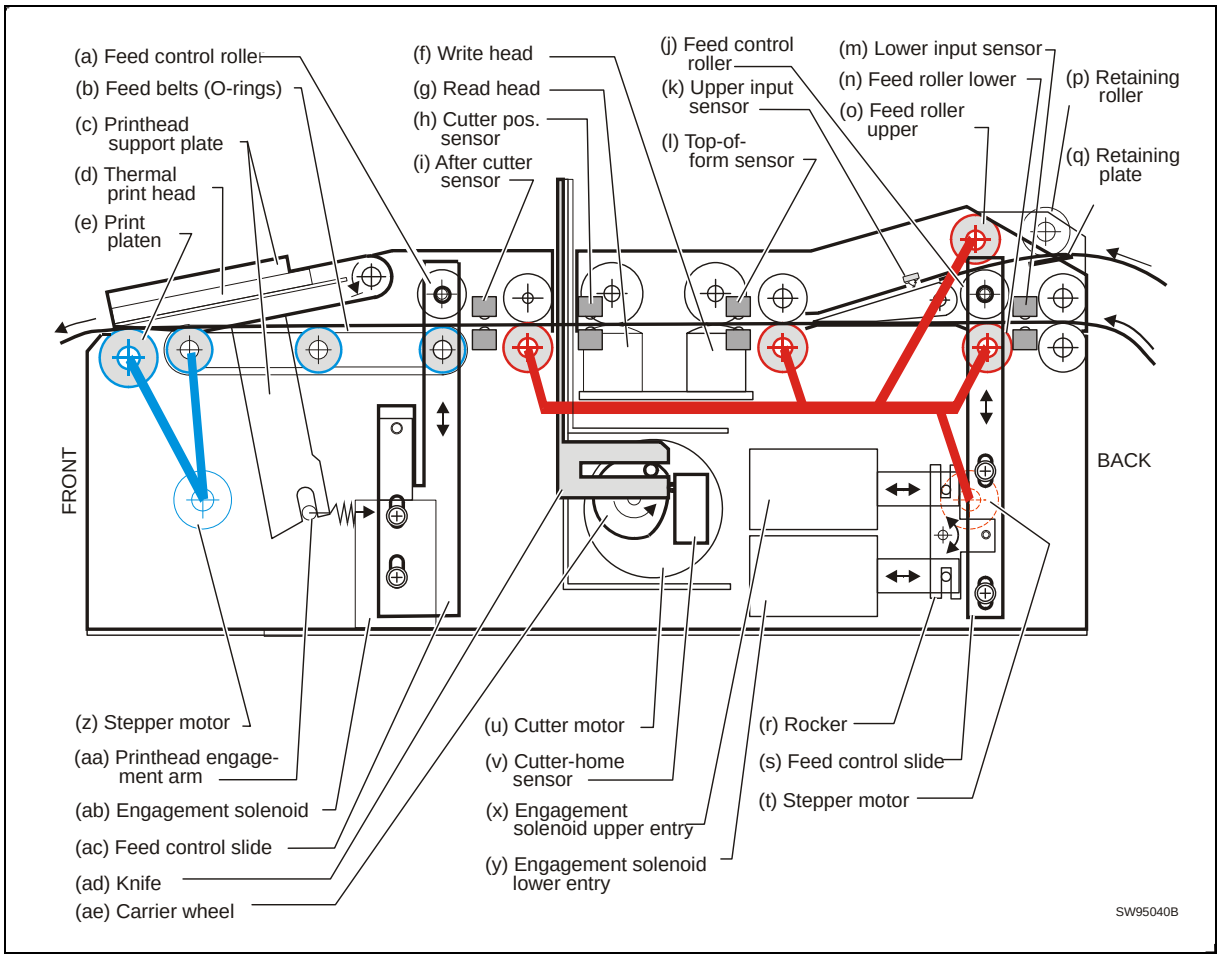


Figure 4. Standard printer/encoder unit mechanics

3.1.1 Document paths

See Figure 4.

The TTPM3 can handle the following document path combinations:

- Two software-selectable paths for fanfold or roll stock.
- One path for a fanfold or roll stock and one single-document path with override function.
- Lower document path used for automatic insertion of single cards from an optional card dispenser fitted at the back of the TTPM3. Upper document path is not used.

The figure shows the TTPM3 design with two software- selectable paths for fanfold or roll stock. The shaded lines indicate feed rollers directly driven by stepper motors via gear wheels. The un-shaded rollers are guide or pressure rollers.
Roller (p) presses the document against retaining plate (q). When the document is retracted to a standby position, the roller prevents the document from slipping out of the input module.
Each document path has an opto-sensor detecting the insertion and the presence of a document. Other opto-sensors alert the system about the position and the presence of the document on its way through the printer/encoder unit.

3.1.2 Document feed control

See Figure 4.

The input and output modules have one feed control roller each, (a) and (j). The rollers can be moved vertically by means of engagement solenoids and feed control slides that press the ticket against the feed roller or feed belts.
The rear, lower solenoid (y) moves the slide through an intermediate rocker plate (r).
The rear, upper solenoid (x) is only fitted if the TTPM3 has two fanfold or roll stock paths.

3.1.3 Cutting module

See Figure 4.
The knife in the cutting module moves by means of a DC-motor (u) with a combined carrier and cam wheel (ae). The motor runs in one direction only during normal cutting operations. A micro-switch sensor (v) detects when the knife reaches its home position. If the mechanism cannot reach its home position, possibly due to a paper jam or similar, the motor will run in the opposite direction until the mechanism reaches its home position.

WARNING!
DANGER OF INJURY. Depending on the position of the carrier wheel on the cutter module, the cutting mechanism may start moving when the mains power supply is switched ON. KEEP HANDS AWAY WHEN SWITCHING ON THE POWER.

3.2 Front Load

3.2.1 Design

The Front Load option consists of an input/output module and a printhead lifting mechanism. The front load option also has a lift mechanism for raising the in/out feeder assembly to enable a document to be directed out through an opening at the bottom of the input/output module to a waste bin.

The printer can be programmed either to hold the ticket so that the customer can take it from the printer, or fully ejects the ticket so that it can fall down into a tray or bowl and the customer can take it from there.

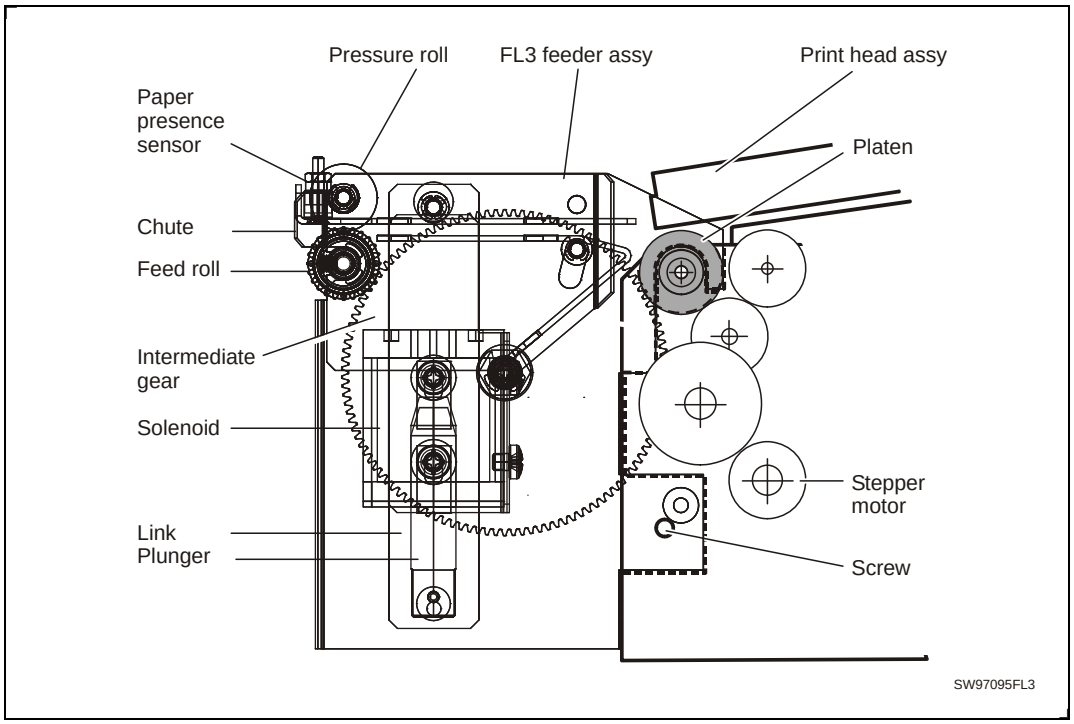


Figure 5. Front load input/output module design. Note that the feed roller is in the very front of the unit so that the ticket can be dropped into a bowl.

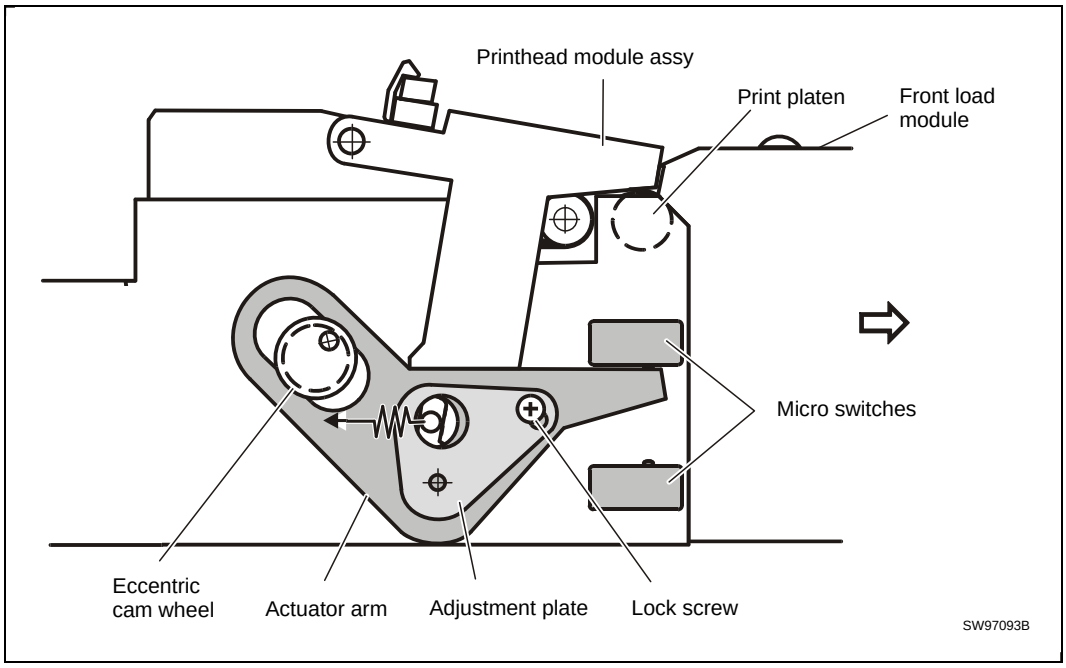


Figure 6. Printhead lifting mechanism design (optional)

3.2.2 Function

FEEDING THE DOCUMENT IN

When the paper presence sensor detects a document, the printhead lifting mechanism lifts the printhead and the stepper motor starts turning.

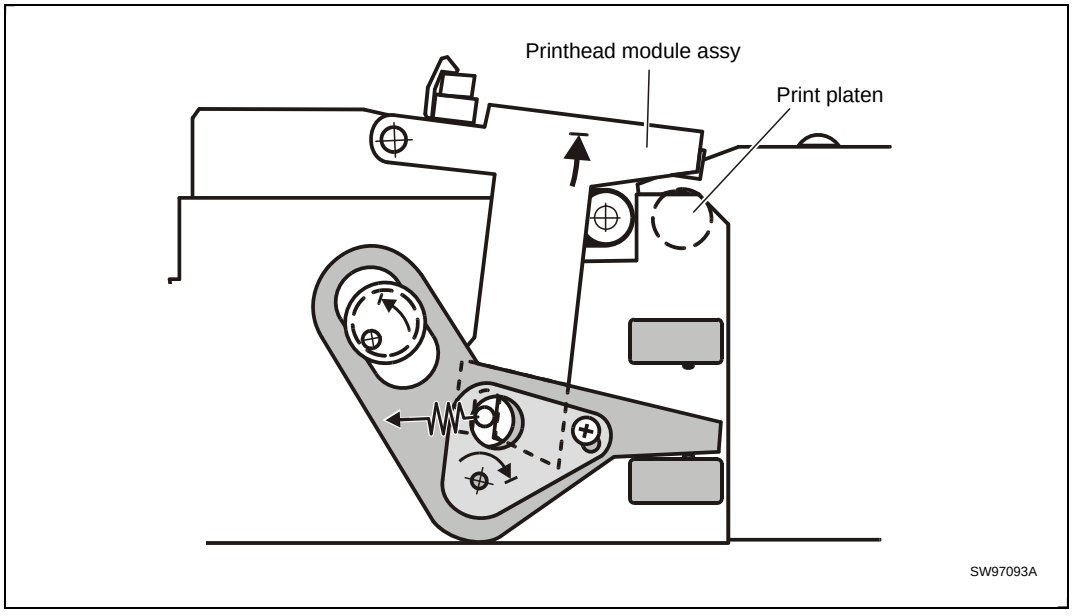


Figure 7. Printhead lifted to accept document inserted at the front

The document is fed through the front load input/output module into the ordinary “output module” now also serving as an input device. A leaf spring ensures that the document is kept pressed against the running feed belts to get sufficient friction.

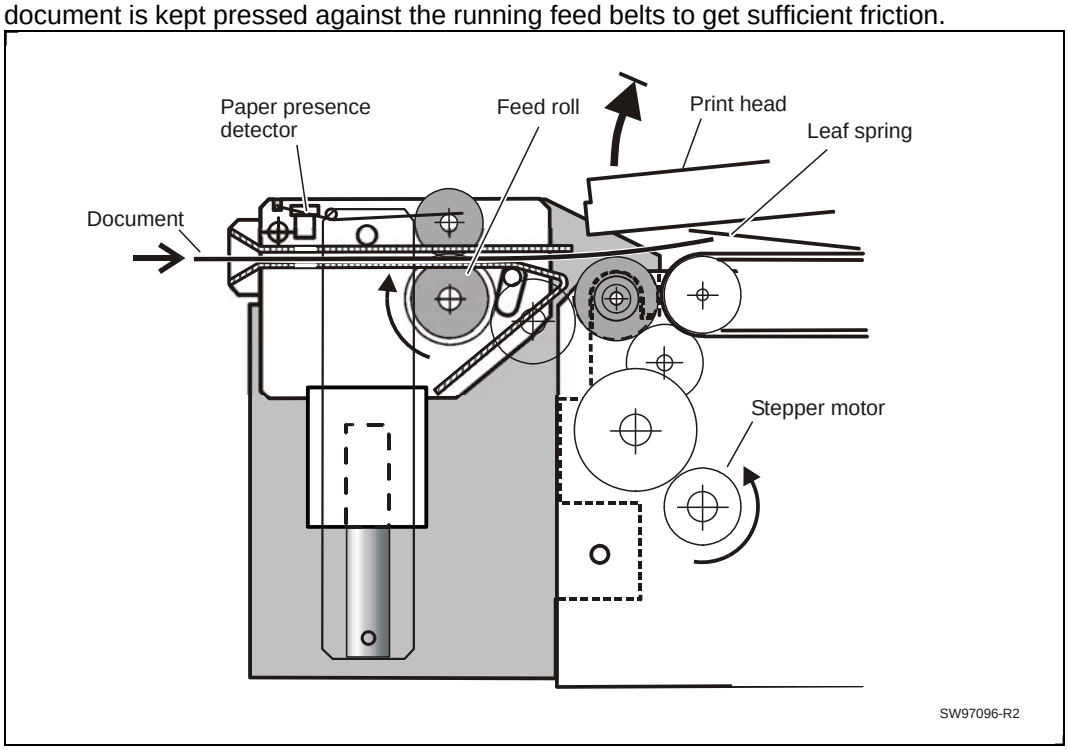


Figure 8. Document is fed through into the ordinary output module

The document moves all the way into the upper rear document path. The application program decides whether the document should be decoded, encoded, printed, or disposed of.

FEEDING THE DOCUMENT OUT

Returning the document through the input/output module (can also be fed out through the rear document path) is the reverse of feeding the document in. Note that the document is guided out through the horizontal path (see arrow).

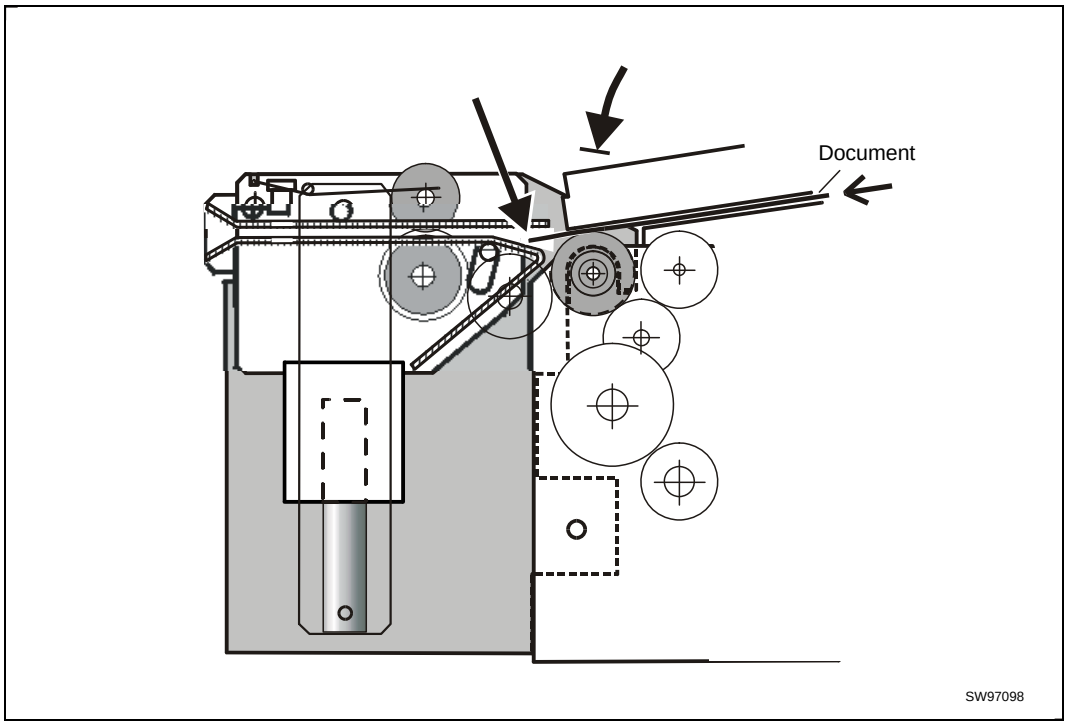


Figure 9. Feeding the document out the normal way

Alternatively, the document can be fed out downward into a waste bin or similar. This is affected by a software command that actuates the solenoid that pushes the link upward and pivots the input module so that the document is guided downward and out.

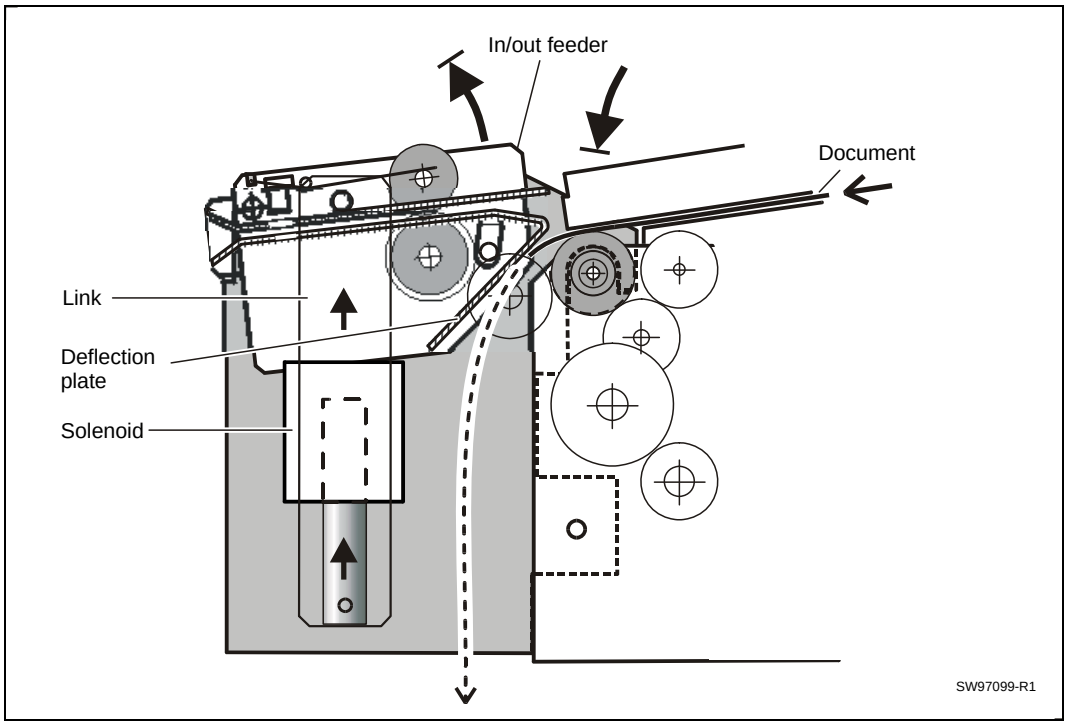


Figure 10. Dropping the document into a waste bin or similar

3.3 Control board

See Figure 12. TTPM3 functional block diagram on page 19 and the logic diagram in Chapter 5.

3.3.1 Microprocessor system

The main parts of the microprocessor system are

- 80C420 processor
- 2MB FlashPROM
- 128 K RAM
- Two programmable I/O ports

3.3.2 Memory

The Flash stores system parameters, fonts and firmware. The RAM stores print data saved in a page memory area that can be further split into one area for fixed, recurring, information and one area for variable information. The content of the RAM is deleted when power is turned off while the data in the Flash remains.

3.3.3 Printing

The printhead has 384 heating elements in a single line. This corresponds to 48 bytes of print data per dot line. The printhead has its own CPU-like logic circuitry with a separate 4 MHz oscillator. Data to be printed is transferred on the data bus to the printhead, where the data is shifted byte-wise into a 48-byte wide register before a dot line is printed.
The thermal coating on the document changes from white to black color at a specific temperature. The warmer the printhead, the less heating energy is needed and vice versa. Therefore, the printhead contains a thermistor connected to a voltage controlled oscillator (U11) on the control board. The frequency of the output signal TEMP is proportional to the printhead temperature. The microprocessor uses the TEMP signal to set the duty cycle of the regulated voltage applied to the heating elements.

3.3.4 Magnetic stripe encoding and reading

The magnetic stripe module encodes and reads ISO tracks 1, 2 and 3 with low or high coercivity. A center track magnetic module is also available, but the electronics is the same with the recording and reading heads connected to track 2.
The module is connected to the control board through connector J3.
Data write and enable signals are transferred to the magnetic stripe module through the I/O port (U5).
Read clock signals (MCRCLK1, MCRCLK2) and data signals (MCRDATA1, MCRDATA2) are transferred directly to the microprocessor (U2), the clock signals as interrupts.
The setting of parameter 3 affects the magnetic stripe function as follows:

n3	1 =	Disable read-after-write.
	0 =	Enable read-after-write.

3.3.5 Cutting

The DC-motor first turns in one direction to perform the cutting. The cam wheel actuates the micro-switch sensor when the mechanism reaches its home position again. At this moment, the motor is forced to a quick stop as the drive circuit for turning the motor in the opposite direction is activated momentarily.

3.3.6 Communications interface

The TTPM3 communicates with the host through the RS232 serial interface. The transfer rate is 115200 baud as default but can be set to other speeds with parameter 1. Circuit U13 adapts the TTL-levels to RS232 levels.
The communication protocol is:

8 data bits
1 stop bit
No parity
RTS/CTS handshaking

The setting of parameters 2 and 6 affects the communication as follows:

n2	1 =	RTS/CTS
	2 =	XON/XOFF
n6	1 =	ACK/NAK (+ error code) enabled
	0 =	Disabled (silent)

3.3.7 Power supply

The power supply unit (PSU) is of the switched mode type and supplies +24V to the control board.
A transistor on the control board switches ON the +24 V when motors, solenoids and printhead is to be used and keeps it off when the printer is idle. This is to prevent the drive circuits in the printhead from becoming damaged since their status is undefined before the +5 V is at correct level.

NOTE! — *At these high currents it is essential that the leads and connectors be in good condition. Excessive resistance in these parts may cause very strange behavior of the printer.*

With Zebra power supplies, just connect the cable from the power supply to J5.
If you use another type of power supply unit, 24 V cables are available from Zebra, order No. 01370-000.
Should you make cables of your own, connect the voltages according to the following illustration. Note that protective ground and minus output should *not* be interconnected in the power supply. At the printer end of the cable, use an AMP Mate-N-Lok connector housing and two contact-sockets:

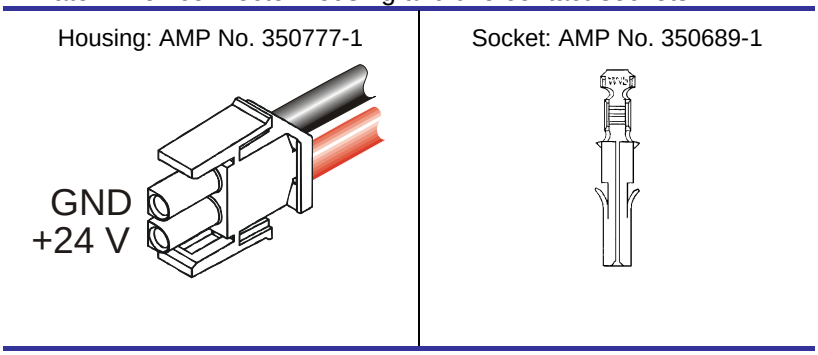


Figure 11. Power connection

Mode	
Idle	150 mA
Standard text printing	2 A average
Peak current	6 A

Table 1. Current consumption

NOTE! – *The 24 V ground, as well as the chassis of the printer, must be connected to ground potential (safety ground).*

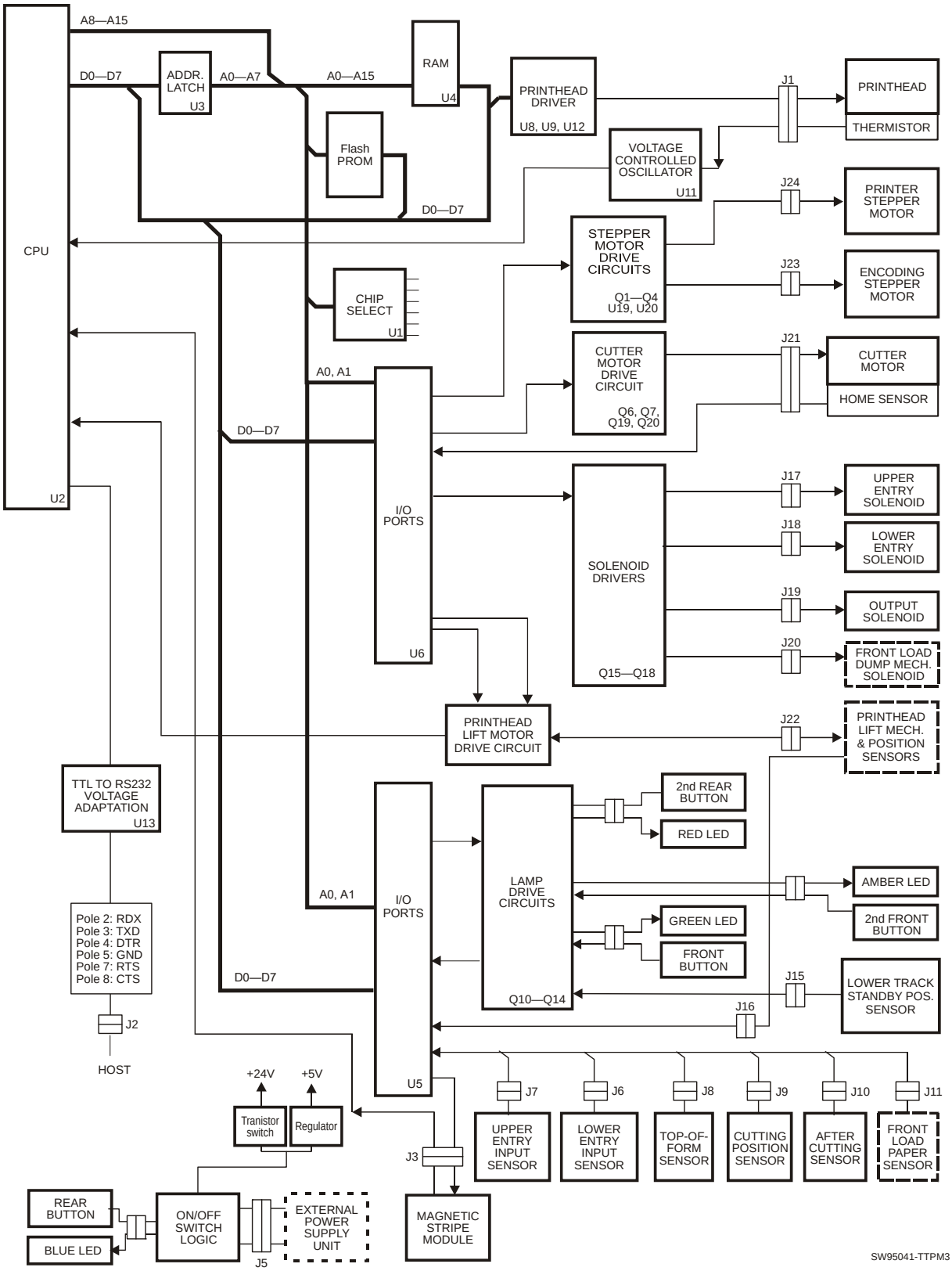


Figure 12. TTPM3 functional block diagram

4 MAINTENANCE

WARNING!

DANGER OF INJURY! *Depending on the position of the crank mechanism in the cutter module, the cutting knife may start moving when the printer is switched ON.* ***KEEP HANDS AWAY!***

CAUTION!

The power supply should be switched off before you disconnect or connect any other cable on the control board. The printer electronics might otherwise be damaged.

CAUTION!

The printhead and some components on the control board are sensitive to ESD (electrostatic discharges). To prevent damaging such components, observe all the usual precautions such as keeping the part in its original packing ("ESD-bag") until you are ready to install the part. Do not touch its pins. Use a grounded wrist strap when handling ESD-sensitive components.

4.1 Preventive maintenance

Clean the paper path and document sensors from dust and paper particles at regular intervals. The operator usually does this.
Clean rubber feed rollers, and feed belts, pressure rollers, printhead, and read/write heads with isopropyl alcohol when necessary.
Clean the sensors with compressed air (available on spray cans).

CAUTION!

NEVER use petroleum based cleaning agents. The rubber platens and rollers will be destroyed.

Oil the bearings and the cutting mechanism sparingly with Dexron II oil or similar when necessary. Apply grease on hubs, camwheels etc. according to the illustration on the next page.

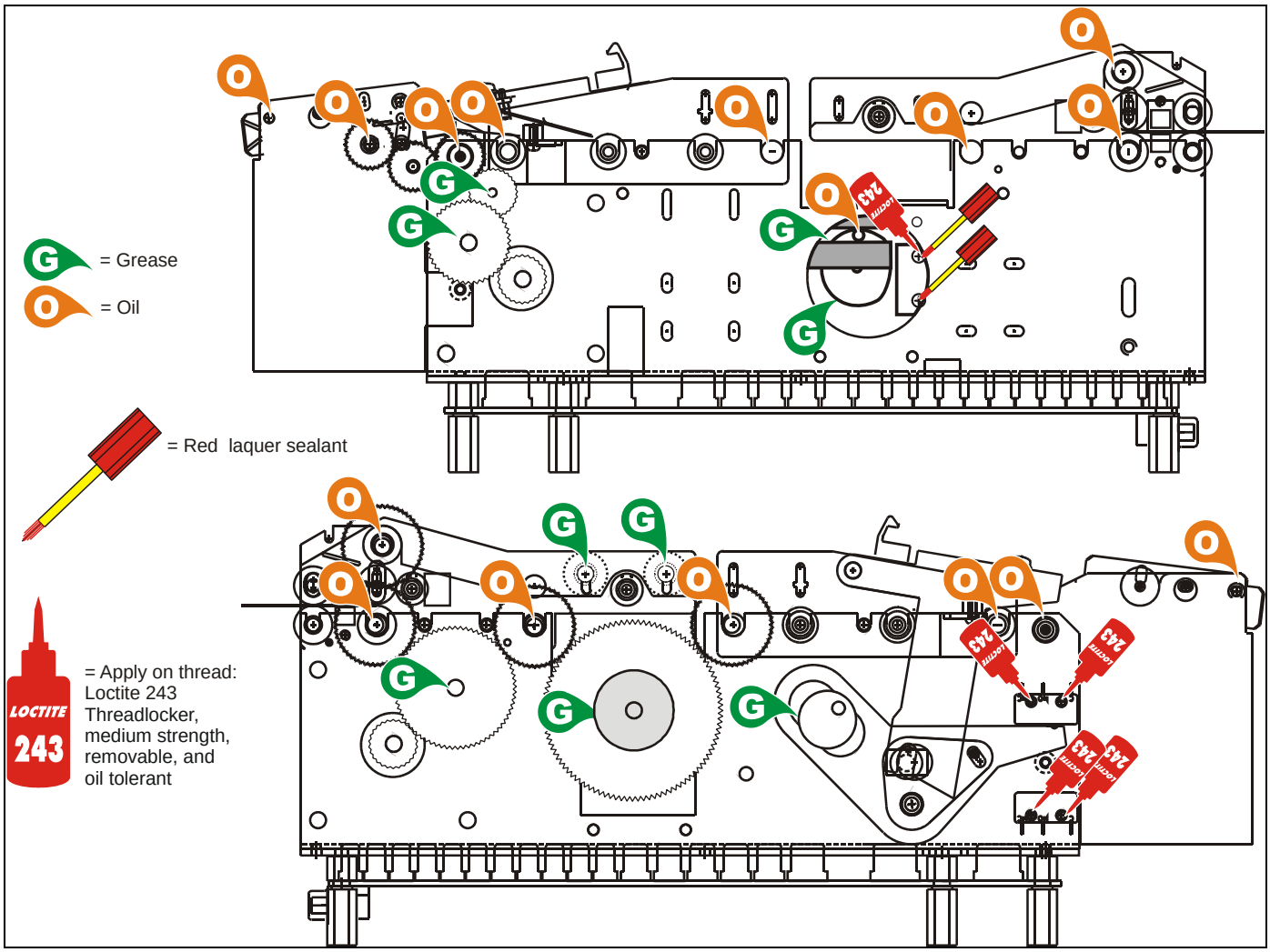


Figure 13. Lubricating a TTPM3

4.2 Fault finding

The TTPM3 informs the host of some error symptoms by means of status reports and error codes (if not disabled with parameter n6). The indicators on the control panel indicate errors requiring assistance of the operator. Both parameter settings and error codes are described in the TTPM3 Technical Manual

Below follow some hints on other error symptoms and how to act upon them:

SYMPTOM
Varying space between lateral dot lines as a result of irregular paper feed.

ACTION
Check that the output module is fully seated in the basic module and that the gear wheel of the output module is in mesh with the gear wheel of the basic module.

SYMPTOM
No cutting, bad cutting, uneven cut edges, etc.

ACTION

Remove any obstructing paper particles in the cutting mechanism.
Check that the cutting motor and home position sensor connectors are fully seated on the control board.

SYMPTOM
Magnetic stripe encoding and decoding errors.

ACTION

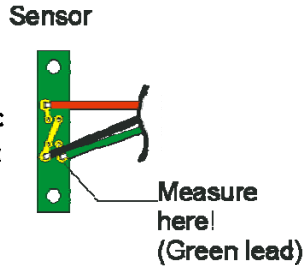
Clean R/W heads, feed rollers, and O-rings with isopropyl alcohol.
Check that the input module is fully seated in the basic module and that the gear wheel of the output module is in mesh with the gear wheel of the basic module.
Check that the feed rollers are properly adjusted.
Check the connections to the control board.

SYMPTOM
Ticket backs out of the input module when it should not.

ACTION

Check sensor levels
Clean sensors
Verify that preprint does not disturb sensor by loading a white ticket and measure levels.

- **Connect volt meter between green lead and ground**
- **Ticket: Below 0.7 Vdc**
- **No ticket: Above 3 Vdc**



SYMPTOM

Only one self-test ticket can be done. When you press the print button again, only blank tickets are produced.

ACTION

Check the setting of parameter n7, "Clear memory after print". If it is ON, this is the correct behavior.
If n7 is OFF, test the printer with another power supply unit.
If the power supply fails to deliver enough current, the printer is reset when the black line at the end of the self-test ticket is printed.

4.3 Service checklist TTPM3

The following steps should be carried out in a normal TTPM3 service. This list can be copied and each step ticked off ☑ in the boxes as a protocol.

Cover

- ❑ Remove the four screws holding the printer mechanism to the bottom of the cover.
- ❑ Lift the printer-mechanism out of the cover.

Print Module

- ❑ Open the printhead and clean the printhead resistor-line with alcohol.
- ❑ Check the plastic cogwheels for wear.
- ❑ Check for wear in bearings.
- ❑ Check that the plastic cogwheel fastening bolts do not jiggle (are secured with Loctite)

Output Module

- ❑ Remove the output module.
- ❑ Check for damages on the feed roller and pressure rollers. Replace at signs of wear.
- ❑ Clean platens and rollers.
- ❑ Check the o-rings for cracks and wear. Replace if necessary.
- ❑ Clean the sensors with alcohol.
- ❑ Clean frame module from cutter dust. Check that the cogwheel shafts are fastened to the frame.
- ❑ Check that the ticket width setting is correct using gauge 02443-000.

Input module

- ❑ Remove the input module
- ❑ Check for damages on the platen. (The urethane plastic may wear where the magnetic strip passes.) Replace at signs of wear.
- ❑ Clean platens and rollers.
- ❑ Check that all circlips are in place.
- ❑ Clean the sensors with alcohol.
- ❑ Check that the ticket width setting is correct using gauge 02443-000.

Magnetic module

- ❑ Clean the magnetic heads with alcohol.
- ❑ Check that the heads do not have excessive wear. Replace magnetic module if worn.

Cutter

- ❑ Check blades for wear.
- ❑ Lubricate the fastening of the moving blade with grease.

Refitting the modules

- ❑ Fit the input and output modules.
- ❑ Fit the printhead pressure plate. Use new circlips.
- ❑ Adjust the Maghead rollers to the thickness of the customers' tickets, make sure grove is upwards!.
- ❑ Check that all screws are firmly tightened.
- ❑ Lubricate all bearings with gearbox oil.
- ❑ Connect the indicator/push-button cable to the control board.
- ❑ Fit the mechanism in the cover.
- ❑ Connect the power supply.

Testing

Check using self-test printouts:

- ❑ Check that the solenoids of the input module pull the tickets in correctly. Adjust if necessary.
- ❑ Check with tickets in the upper entry.
- ❑ Print on the same ticket several times to see that the text is positioned about the same each time you print.

Check with the printer on-line:

- ❑ Use a terminal program or the TTP editor. Print a 380x10-pixel bitmap. Check that all pixels are black. Replace the printhead if necessary.
- ❑ Set parameter n3 to 2 for “dual entry”. Check that the solenoids for entry changing works correctly and that the non selected ticket entry backs out enough so that the tickets do not collide.
- ❑ Print 50 tickets with encoding to check if the coding works correctly and that the hand-shaking of the serial communication works.
- ❑ Reset the parameters to the customer's configuration.
- ❑ Clean the cover.

4.4 Parts removal and replacement

Whenever modules are loosened, removed or replaced, a complete adjustment and verification cycle must be performed.

NOTE 1! — *This is essential for the reliability of the printer and should NEVER be overlooked!*

NOTE 2! — *Only technicians having the appropriate knowledge and experience of the TTPM3 should carry out the adjustments.*

⚠ ***WARNING!***

DANGER OF INJURY*. Depending on the position of the carrier wheel on the cutter module, the cutting mechanism may start moving when the mains power supply is restored.* ***KEEP HANDS AWAY! DISCONNECT THE POWER CABLE BEFORE DISASSEMBLING THE UNIT****!*

See figure 20 for connector numbering and interconnections.

4.4.1 Tools required

Tool	Part No.
Screwdriver Phillips No. 0	02542-000
Screwdriver Phillips No. 1	02542-001
Screwdriver Slot 3x75	02543-030
Screwdriver Torx T9	02449-009
Hexagonal wrench 1.5 mm	02445-015
Hexagonal wrench 3 mm	02445-030
Nut driver 4 mm	02541-040
Nut driver 5.5 mm	02541-055
Nut driver 7 mm	02541-070
Block wrench 8 mm	01802-080
Tension-spring hook	102820
Circlip tool for RS 2.3 clips	102177
Circlip tool for RS 3.2 clips	102818
Circlip tool for RS 4 clips	102819
ISO ticket width gauge	02443-000
Set of feeler gauges	-
Vacuum cleaner with computer type hose and brush set	-
Compressed air	-
Isopropyl alcohol	-
Gear oil, for example ATF oil type Dexron II, or Shell Tegula 27 oil	-
Grease type “HASCO Z260”	-
Vaseline spray “type “Bajol”	-

4.4.2 Torque settings, and thread locking

Do not over-tighten the screws. The max torque for the different screw sizes are as follows: M2 = 0,13 Nm, M2.5 = 0,26 Nm, M3 = 0,46 Nm, and M4 = 1.1 Nm.
Threadlock like Locktite 243 should be used on screws that hold plastic parts, for instance the screws for the micro-switches.

4.4.3 Firmware

The firmware is the software that controls the TTPM3. It is stored in a Flash PROM and can be updated from the host computer. How to do this is described in the Technical Manual. You can download firmware from www.zebra.com.

4.4.4 Cover

REMOVAL

1. Turn the printer upside down.
2. Remove the four screws securing the printer/encoder unit to the bottom pat of the cover.
3. Lift the printer/encoder mechanism out of the Cover.

REPLACEMENT

Install the module in the reverse order.

4.4.5 Printhead module

REMOVAL

1. Disconnect the printhead cable from the printhead.
2. Remove the two circlips from the shaft attaching the printhead support plate to the output module.
3. Pull the printhead engagement arm forwards to relieve the printhead and then pull out the shaft completely.

REPLACEMENT

If the output module has been removed as well, this one should be mounted on the basic module **before** you fit the printhead module.

1. Mount the printhead module in the reverse order.
2. Check that the printhead engagement arm connects to the spring-loaded rod extending outside the left side of the basic module.
3. If the output module had been removed as well, check that is fully seated on the basic module so that the gear wheels are correctly in mesh.

4.4.6 Output module

REMOVAL

1. Remove the printhead module as described above.
2. Disconnect the sensor cable from the control board connector J10. Write the connector No. on the connector housing using a permanent marker pen so you easily can reconnect it to the right header.

3. Loosen the two Allen-screws securing the output module to the basic module.
4. Bend the feed control slide out a little and remove the output module.

REPLACEMENT

The printhead module should not be mounted on the output module yet.

1. Bend the feed control slide out a little and lower the output module on to the basic module.
2. Tighten the two Allen-screws and check that the gear wheels engage correctly.
3. Connect the sensor cable to the control board connector J10.
4. Mount the printhead module as described above.

4.4.7 Input module

REMOVAL

1. Mark and disconnect the sensor cables from the control board connectors J6—J9 + J15.
2. Loosen the four screws securing the input module to the basic module.
3. Bend the feed control slide out a little and remove the input module.

REPLACEMENT

1. Bend the feed control slide out a little and lower the input module on to the basic module.
2. Check that the gear wheels engage correctly before you tighten the four screws firmly.
3. Connect the cables to the control board connectors J6—J9 + J15.

4.4.8 Magnetic stripe module

REMOVAL

1. Remove the printer/encoder unit from the cabinet as described above.
2. Remove the input module as described above.
3. Disconnect the two cables from the control board connector J3.
4. Remove the four screws securing the magnetic stripe module.
5. Remove the magnetic stripe module. Save the two plastic spacers located under the magnetic stripe module.

REPLACEMENT

Mount the module in the reverse order. Push the module towards the cutter to get it straight, and then tighten the screws.

4.4.9 Cutter module

REMOVAL

1. Remove the printer/encoder unit from the cabinet.
2. Remove the input module and the magnetic stripe module as described above.
3. Remove the printhead module.
4. Remove the output module.
5. Remove the four screws holding the cutter module in position. The screws (two screws on each side) are located below the big holes in the side plates of the basic module.
6. Disconnect the cable from the control board connector then mark the housing with “J21” so it is easy to reconnect.

7. The shaft of the cutter motor extends so far that you have to press the side plates of the basic module slightly apart while you remove the cutter module.

REPLACEMENT

Fit the cutter module in the reverse order.

WARNING!

DANGER OF INJURY*. Depending on the position of the carrier wheel on the cutter module, the cutting mechanism may start moving when the mains power supply is switched ON.* ***KEEP HANDS AWAY WHEN SWITCHING ON THE POWER****.*

4.4.10 Control board

When you order a control board as replacement parts it is configured with firmware and parameter settings suitable for the factory.

REMOVAL

1. Remove the printer/encoder unit from the cabinet as described above.
2. Disconnect all cables from the board, and mark them with a permanent marker pen to ease reconnection.
3. Remove the big hexagonal spacers (nuts) and remove the board.

REPLACEMENT

1. Fit the board in the reverse order.
2. Load the firmware that the customer is using into the printer.
3. Set up the parameters according to the customer's specification.

Instructions how to load firmware and set parameters is available in the Technical Manual.

4.4.11 Front load module

REMOVAL

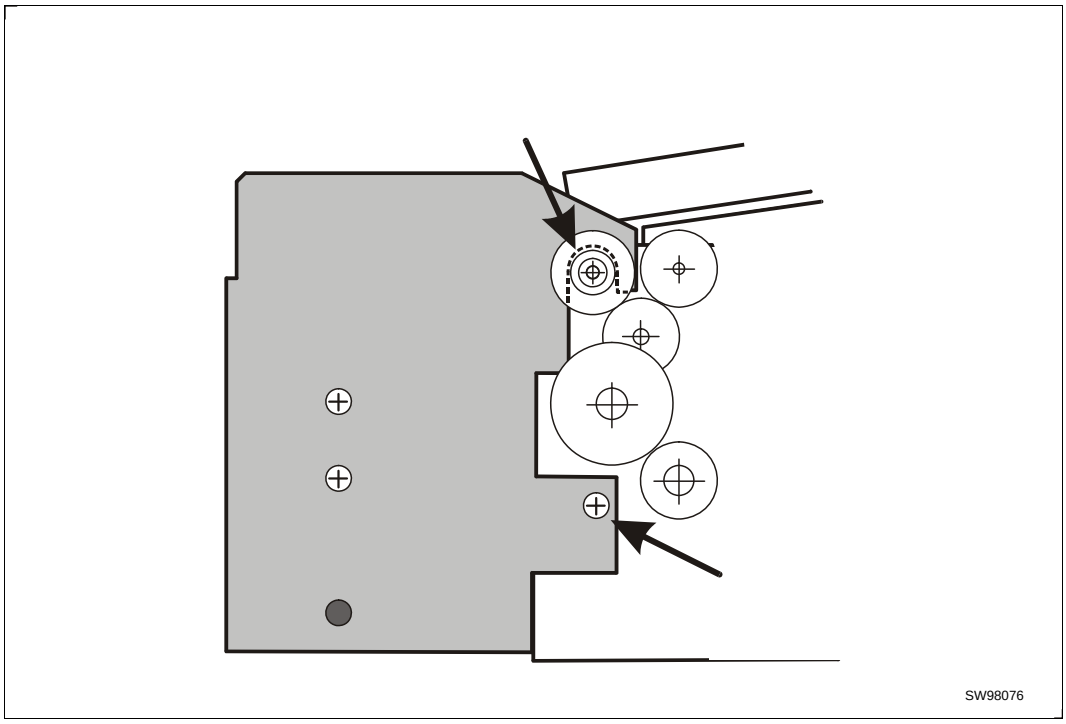


Figure 14. Removing the frontload module assembly

1. Disconnect the frontload cable connectors J11 and J20 from the control board (Remember to mark the houses with No,).
2. Remove one screw on each side of the front load module assembly (see bottom arrow).
3. Lift the printhead.
4. Hook the frontload module off from the print platen bearings.

5 ADJUSTMENTS

Whenever modules are loosened, removed or replaced, a complete adjustment and verification cycle must be performed.

NOTE 1! — *This is essential for the reliability of the printer and should NEVER be overlooked!*

NOTE 2! — *Only technicians having the appropriate knowledge and experience of the TTPM3 should carry out the adjustments.*

The TTPM3 Ticket Printer/Encoder is designed for the ticket width 53.98 ±0.2 mm according to the ISO 7810 standards.
The adjustments are done using a 02443-000 gauge-kit, and a number of the tickets that the serviced TTPM3-unit is going to be used with.

5.1 Preparation

1. Switch OFF the power to the TTPM3.
2. Disconnect ribbon cable **A** from the printhead.
3. Remove two circlips **D** from the rod holding the printhead assembly
4. Keep printhead engagement arm **C** pulled forward while you pull out the rod (not required if front load option is installed).

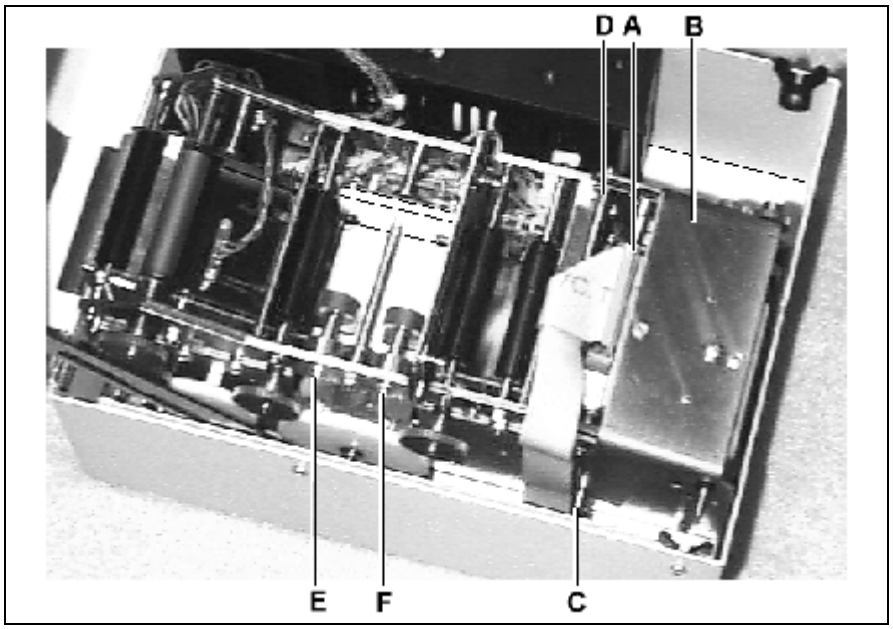


Figure 15. Removing the printhead assembly

5. Remove printhead module **B**.

CAUTION! — Handle the printhead with care. It is sensitive to electrostatic discharges and mechanical wear, especially the front edge of the head substrate.

6. Raise the magnetic head pressure rollers as much as possible by temporarily loosening screws **E** and **F**.

5.2 Ticket path adjustment

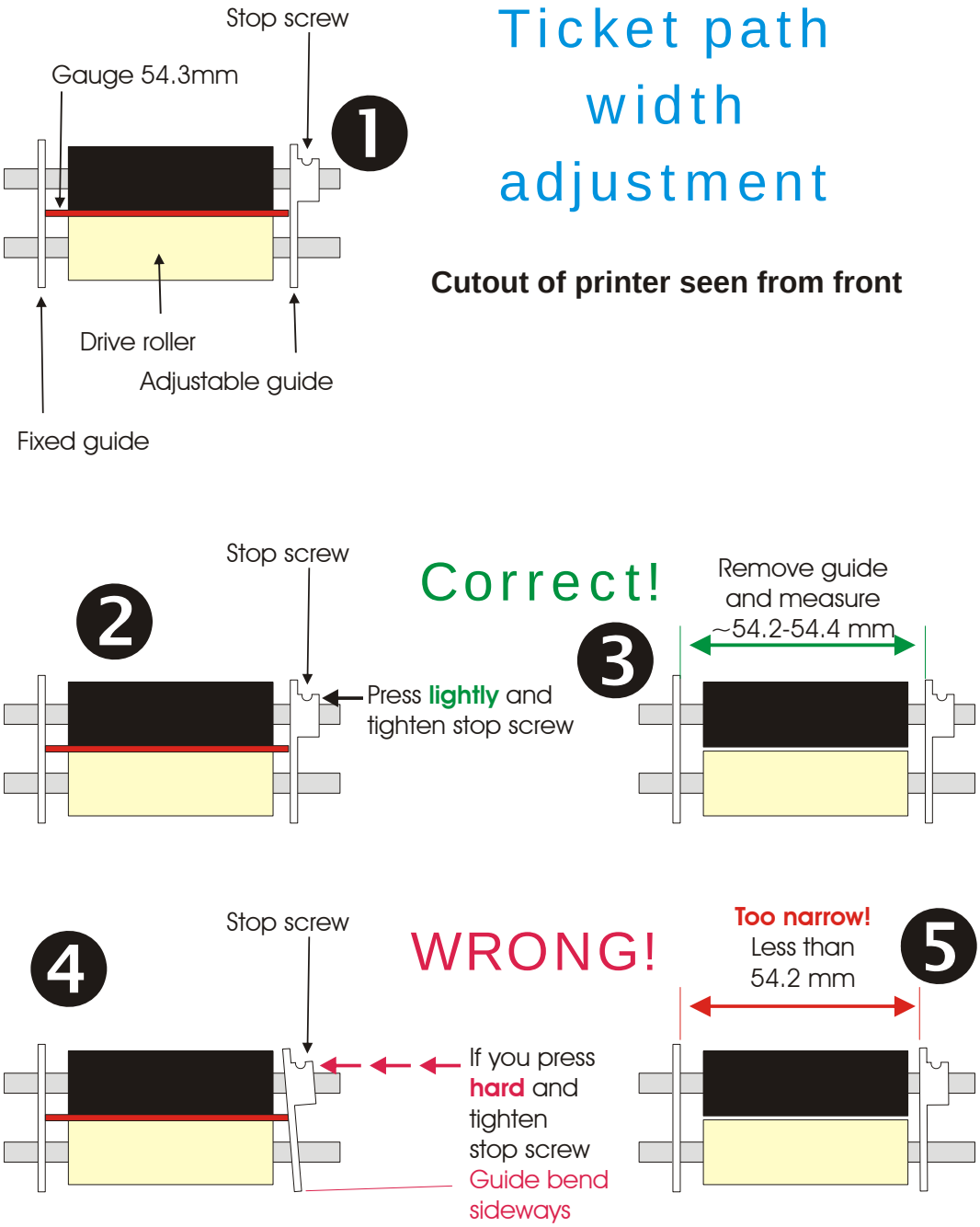


Figure 16. Adjust the ticket path without excessive force!

5.2.1 Rear

1. Loosen 1.5-mm Allen-screws **G** and **H** keeping the rear ticket guide plate in position. Widen the ticket path by pushing the loose guide plate toward the right hand side of the TTPM3.

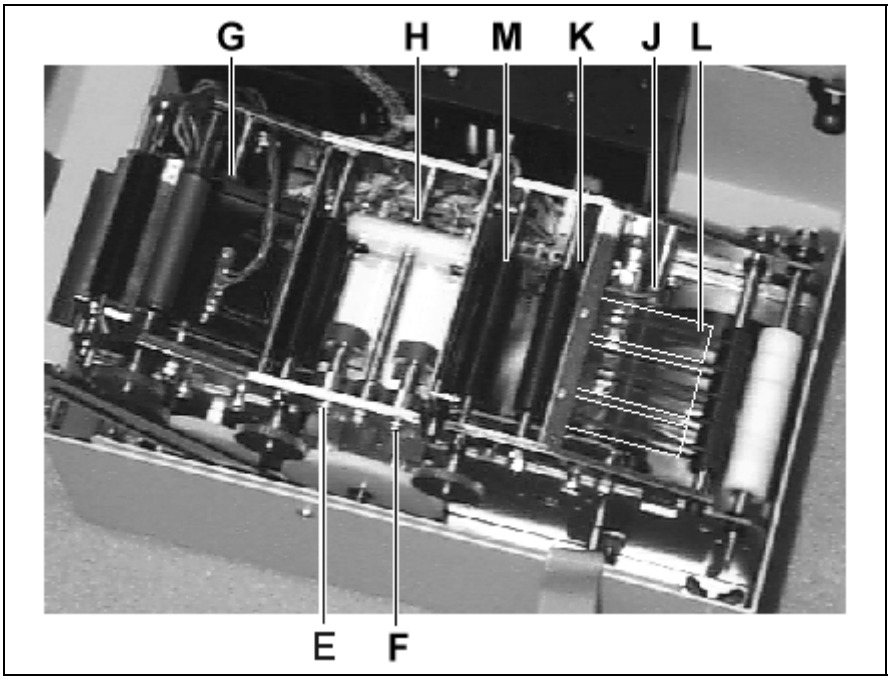


Figure 17. Adjusting the rear ticket path

2. Insert the gauge through the rear lower ticket entrance, and feed the gauge all the way up to the cutter.

CAUTION! — The gauge **must not** be inserted through the rear **upper** ticket entrance since this may damage the gauge. The upper entrance does not need to be checked or adjusted separately.

3. Verify that the gauge, in all its length, is in touch with the fixed guide plate on the left-hand side.
4. Keep the rear movable guide plate gently pressed against the gauge while tightening hexagonal screws **G** and **H**.
5. Remove the gauge by turning the rearmost cogwheel.

5.2.2 Front

TTPM3 without front load option

1. Loosen 1.5-mm hexagonal (Allen) screws **J** and **K** keeping the front ticket guide plate in position. Widen the ticket path by pushing the loose guide plate toward the right hand side of the TTPM3.
2. Insert the gauge under plastic leaf spring **L** and feed the gauge up to the front of feed rollers **M**. Do not insert the gauge between the rollers.
3. Verify that the gauge, in all its length, is in touch with the fixed guide plate on the left-hand side.
4. Keep the front guide plate pressed gently against the gauge while tightening screws **J** and **K**.
5. Remove the gauge.

TTPM3 with front load option installed

The adjustment procedure is almost the same as when no front load option is installed. The only difference is that gauge **N** should **not** be inserted **through** the front load input module. Instead, position the gauge on top of the input module and push the gauge in between plastic leaf spring **L** and the rubber belts.

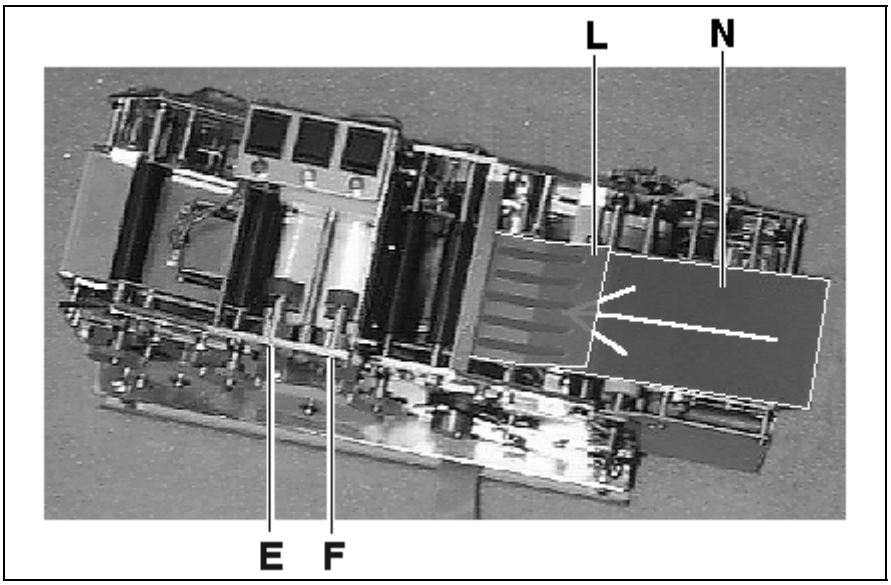


Figure 18. Adjusting the front ticket path on a printer with front load

5.2.3 Completion

1. Keep the printhead engagement arm pulled forward while mounting the printhead module in reverse order. Ensure that the extended, fork-shaped part of the printhead module engages with the arm. Secure the rod with the enclosed new circlips.
2. Connect the ribbon cable at the top of the printhead module.
3. Close the lid (optional).
4. Switch ON the power.

5.3 Magnetic head pressure rollers adjustment

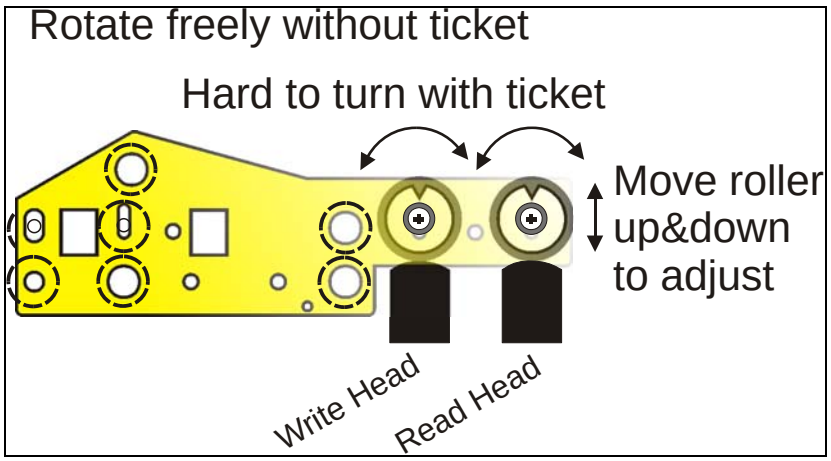


Figure 19. Adjusting the magnetic head pressure rollers to properly encode tickets of a specific thickness.

REMEMBER! *The grove on the roller shaft must face upwards!*

5.3.1 Checking

1. Insert the ticket under the pressure rollers positioned above the magnetic heads. The ticket must be the type of ticket that is to be used in the TTPM3.
2. Rotate the roller with your finger, to verify that there is friction against the ticket, but still possible to turn the roller.
3. Remove the ticket and verify that the roller rotates freely.

5.3.2 Correction

1. Insert the ticket under the pressure rollers positioned above the magnetic heads. The ticket must be the type of ticket that is to be used in the TTPM3.
2. Loosen screw **F** holding the front roller, and let the roller rest against the ticket.
3. Tighten the screw and verify, by rotating the roller with your finger, that there is a slight friction against the ticket. Adjust the roller position if necessary.
4. Loosen screw **E** and adjust the rear roller in the same way.
5. Remove the ticket and verify that the roller rotates freely.

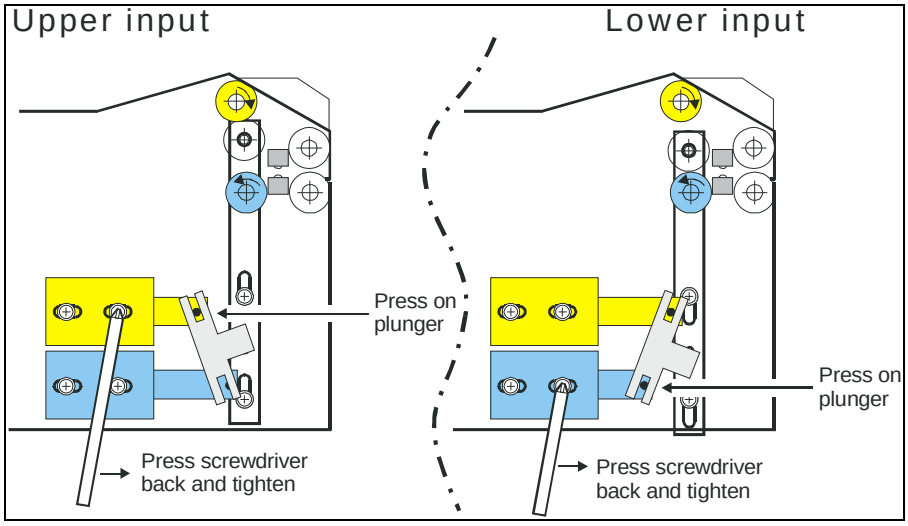
5.4 Solenoids

Solenoids create a linear movement that the TTPM uses to engage and disengage ticket feed. A solenoid consists of a coil with a hole in it, and a plunger. When voltage is applied to the coil, the plunger is pulled into the hole by the magnetic field generated. Solenoids are strongest when the plunger is close to its bottom position. So to get the most pull-force on the ticket material, the solenoid adjustment must be checked after the printer has been disassembled / reassembled.

5.4.1 Adjusting input solenoids

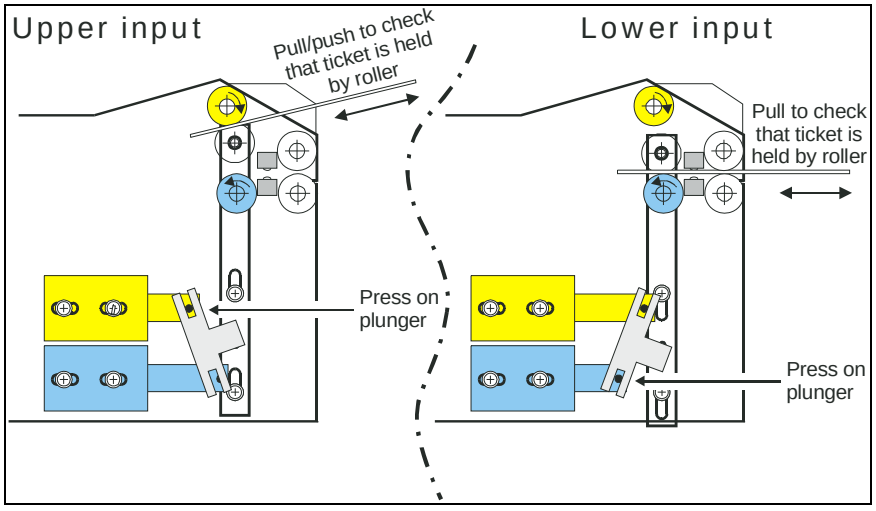
Printers where the upper input is for hand-fed tickets have one solenoid others have two. No ticket should be inserted!

1) Loosen the two screws holding the solenoid coil
2) Press and hold down the plunger
3) Move the coil towards the plunger using the screwdriver, and tighten the screw.
4) Repeat steps 1 - 3 for the other entry if applicable



5.4.2 Verifying adjustment of input solenoids

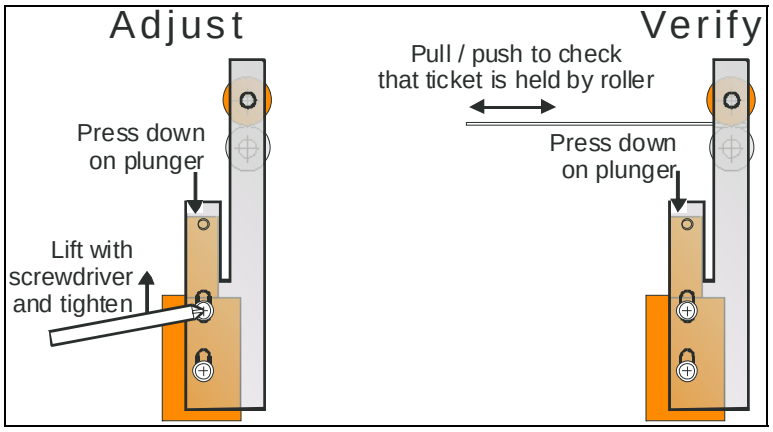
1) Insert a ticket in the entry you want to check
2) Press on the plunger for that entry and verify that the ticket is hard to pull/push. Release the plunger and check that the ticket moves freely.


Upper input
Pull/push to check that ticket is held by roller
Lower input
Pull to check that ticket is held by roller
Press on plunger
Press on plunger

5.4.3 Adjusting output solenoid

No ticket should be inserted!

1) Loosen the two screws holding the solenoid coil
2) Press and hold down the plunger
3) Move the coil towards the plunger using the screwdriver, and tighten the screw.

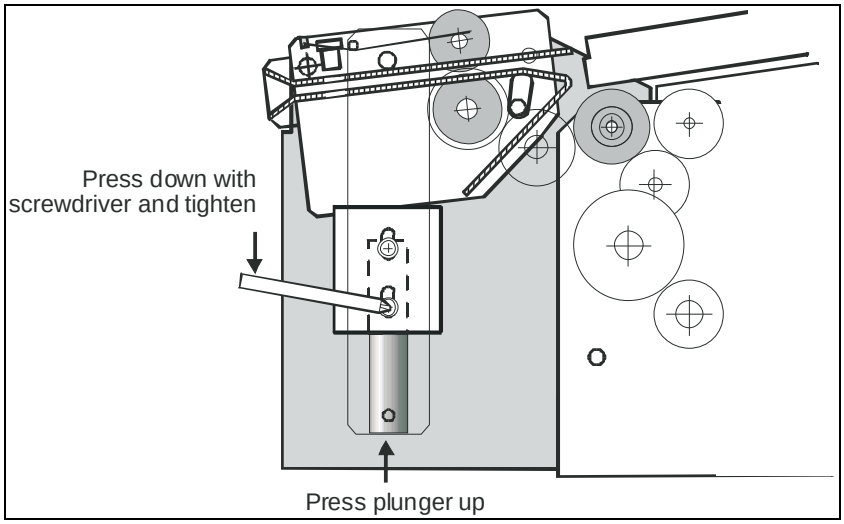


5.4.4 Verifying adjustment of output solenoids

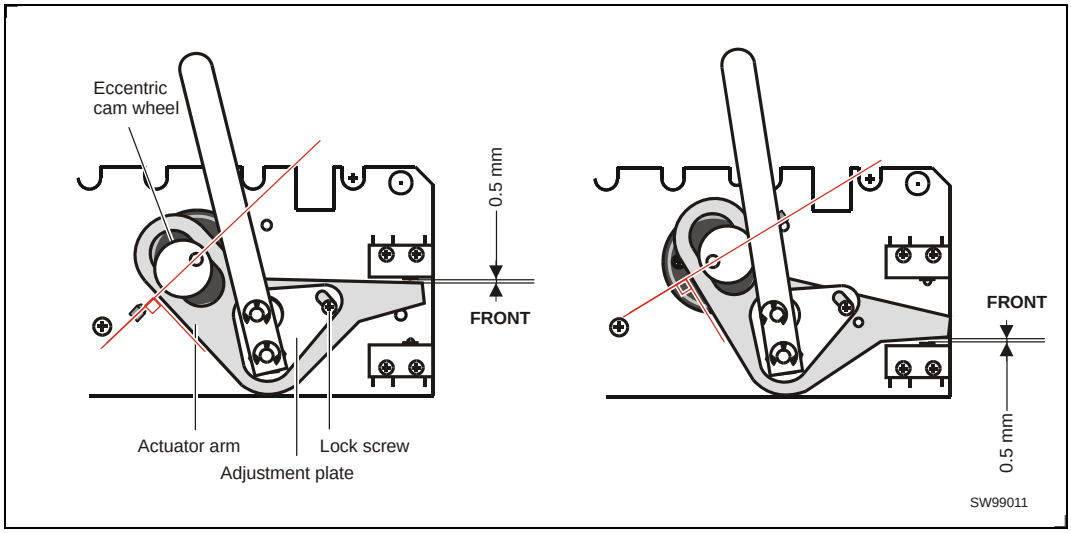
1) Insert a ticket in the entry you want to check
2) Press on the plunger for that entry and verify that the ticket is hard to pull/push. Release the plunger and check that the ticket moves freely.

5.4.5 Adjusting waste basket solenoid

1) Loosen the two screws holding the solenoid coil
2) Press up and hold the plunger
3) Allow the coil to fall down towards the plunger, and tighten the screw.



5.5 Printers with front load



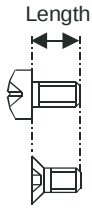
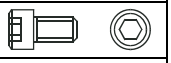
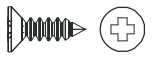
1. Check with a feeler gauge that the distance between the actuator arm and the micro switch housing (the frame around the knob) is 0.5mm. Turn the cam wheel to make sure that it is the minimum distance that you measure. Adjust the switches if necessary.
2. Loosen the lock screw.
3. Power up the printer and make sure that the printhead is lowered to the platen.
4. Let the adjustment plate fall forwards, and tighten the screw
5. Lift the print head up. Pull the lever forward and check that the head falls down by gravity. If not, adjust the printhead pressure plate so that the lash between the chassis and the pressure plate is 0.5 mm sideways and check again.
6. Apply grease on the edges of the hole in the actuator arm where the cam wheel runs.
7. Loosen the front load connector from the control board.
8. Connect a variable DC power supply to the connector; Plus to the red lead, and minus to the blue lead. Increase the voltage to 4 Vdc. The motor should lift and lower the head at this voltage.
9. Reconnect the connector to the control board.

6 REPLACEMENT PARTS

This chapter lists the replacement parts available for the TTPM3. The number of replacement parts is restricted due to the division of the product into easily replaceable modules.

Desktop version, final assembly 40
Modules 44
Input module 48
Magnetic encoding module 50
Pressure Roll Assy. Tracks 1-3 50
Printhead module assembly 51
Output module 52
Cutter module 54
Basic Module 58

An X in the SP column in the parts lists indicate what is available as spare parts. For example screws, washers, nuts etc. available in a common hardware store are not supplied as spare parts.
Should you require any of these "non-spare parts", contact Zebra for advice. Other price and delivery conditions may apply for non-coded items.

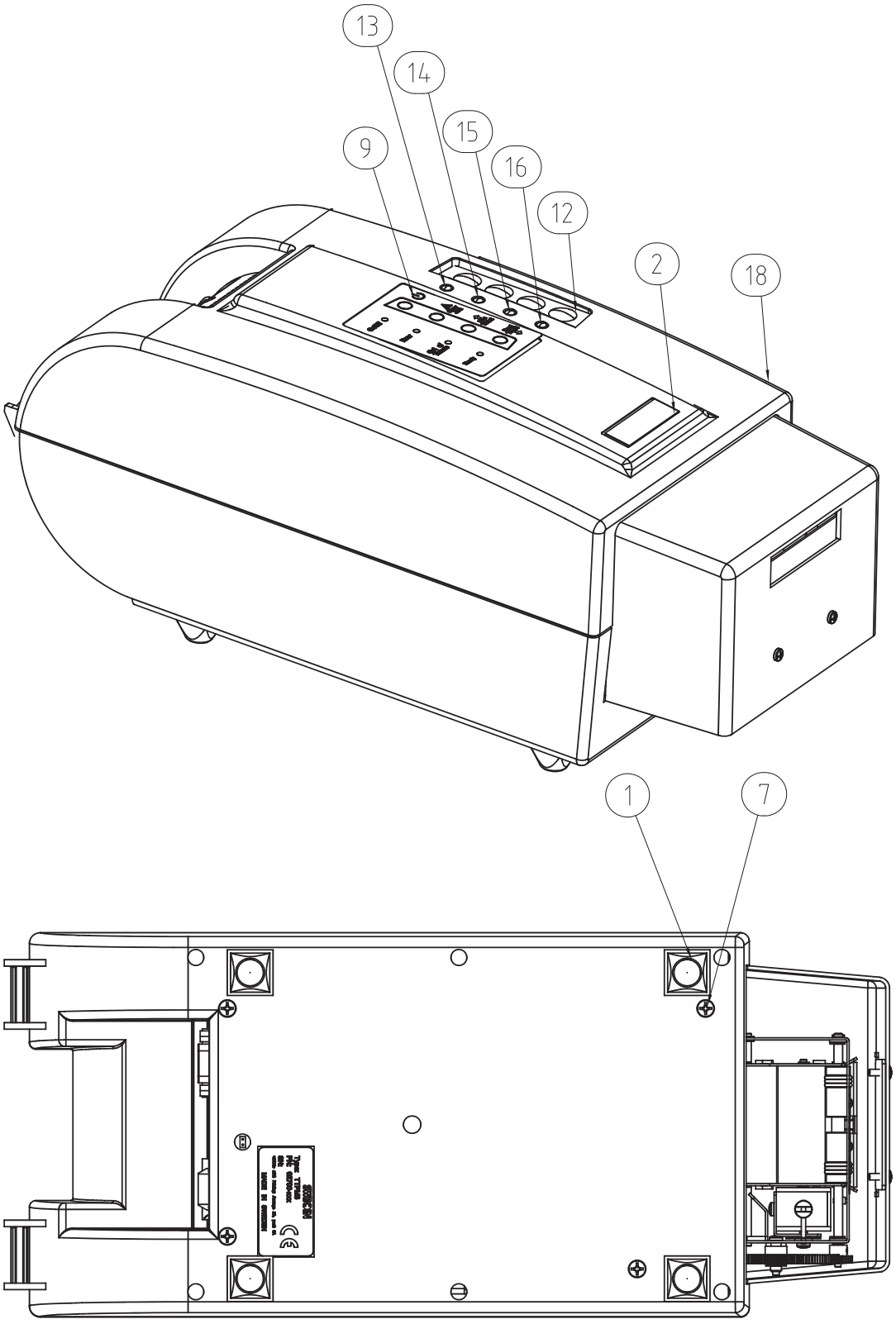
Standard hardware			
Designation example	**How to interpret the designation**	**Illustration**	**How to measure**
Screw MRX-H M3x5	Panhead screw. Thread: M3. Length: 5 mm		
Screw MFX-H M3x6	Countersunk screw. Thread: M3. Length: 6 mm		
Screw M6S M6x16	Hex head screw. Thread: M6. Length: 16 mm		
Screw MC6S M6x12	Allen-head screw. Thread: M6. Length: 12 mm		
Screw FXS-H ST 2.9x6.5	Countersunk Screw. Self-threading. ∅2.9 mm. Length: 6.5 mm		
Screw, RXK-H ST 2.9x8	Panhead screw, Self-threading. ∅2.9mm. Length:8 mm		
Screw RTK ST 2.9x6.5	Torx panhead screw, Self-threading. ∅2.9mm. Length: 6.5 mm		
Nut M6M M2	Hex nut, M2 thread		

DO NOT OVER-TIGHTEN THE SCREWS!

The max torque for the different screw sizes are as follows:
M2 = 0.13 Nm M2.5 = 0.26 Nm
M3 = 0.46 Nm M4 = 1.1 Nm

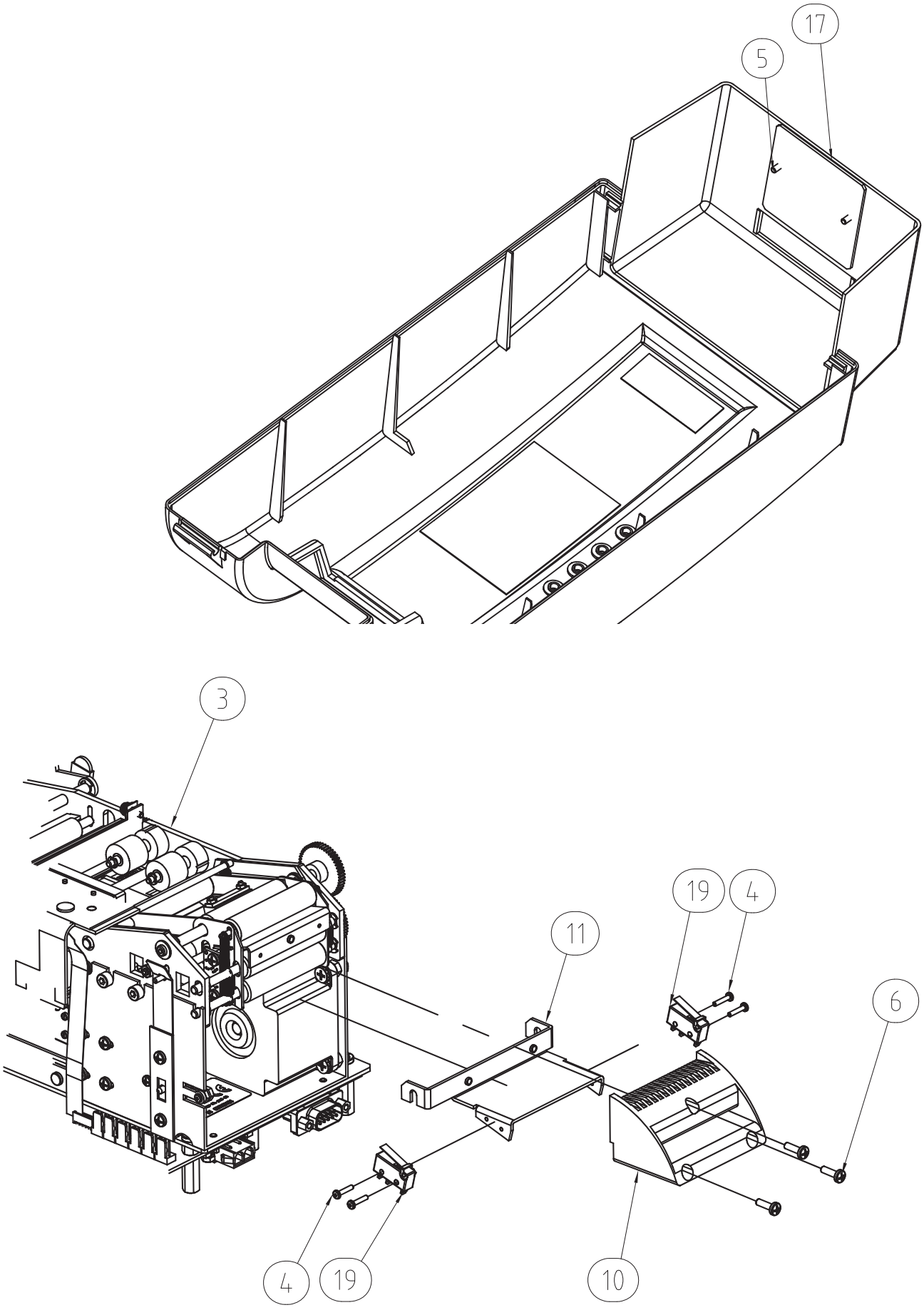
Threadlock like Loctite 243 should be used on screws that hold plastic parts, for instance the screws for the micro-switches.

6.2 Desktop version, final assembly



COVER

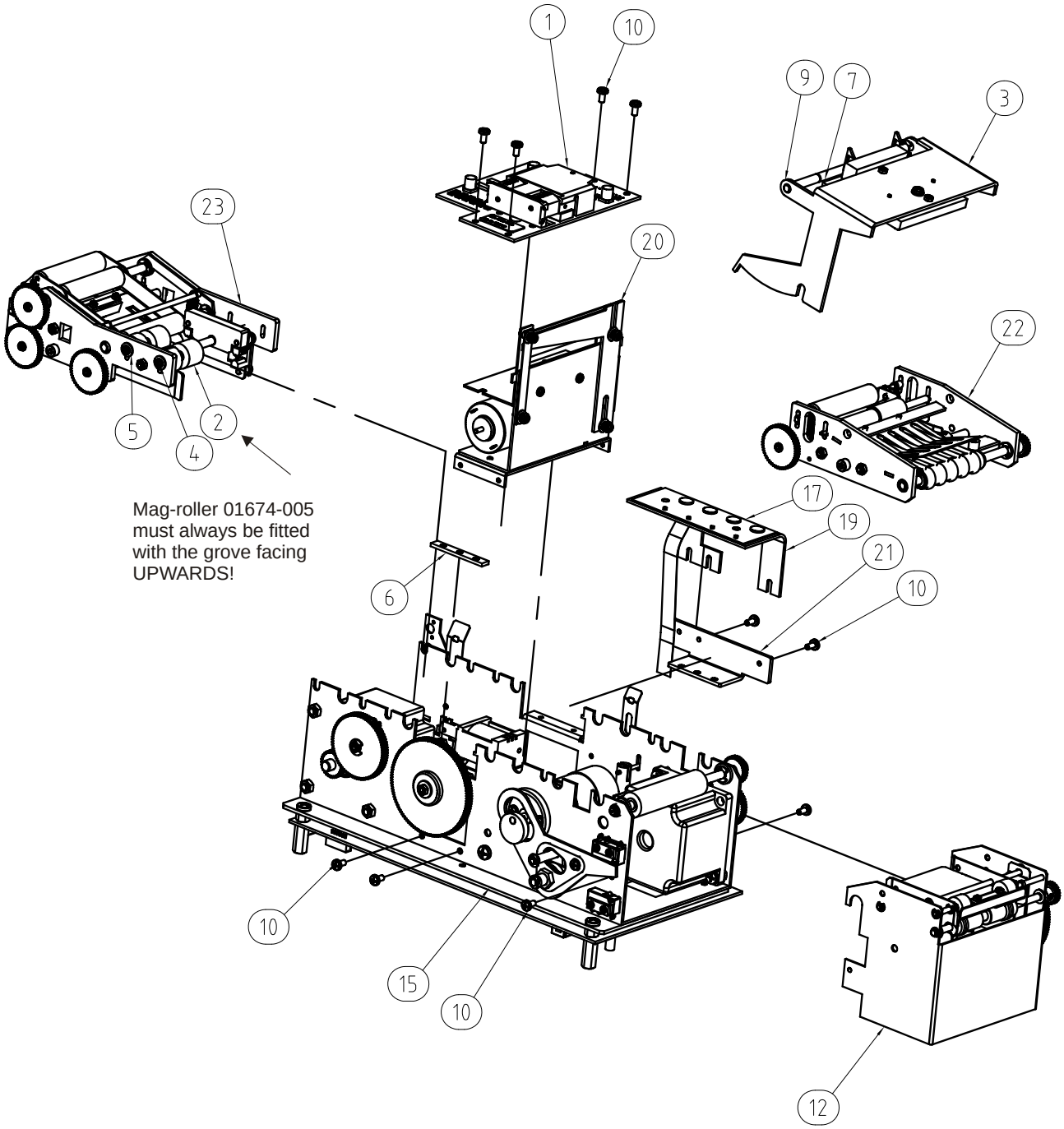
Pos.	SP	Part No.	Designation	Quantity OEM Std	Quantity OEM FL	Quantity Desktop Std	Quantity Desktop FL	
1	X	02349-000	Foot, SJ 5514	-	-	4	4	Pcs.
2	X	02382-000	Label,	-	-	1	1	Pcs.
3		-	TTPM3 Encode / Print mechanism	1	1	1	1	Pcs.
4		09100-168	Screw MRX-H M2x10	-	-	4	4	Pcs.
5		09100-222	Screw MRX-H M3x8	-	-	2	2	Pcs.
6		09100-224	Screw MRX-H M3x10	-	-	3	3	Pcs.
7		09100-287	Screw MRX-H M4x8	-	-	4	4	Pcs.
8		104047	Label TTPM3	-	-	2	2	Pcs.
9	X	104358	Label, Cover	-	-	1	1	Pcs.
10	X	104433	Ticket input guide	-	-	1	1	Pcs.
11	X	104472	Bracket, Input Guide	-	-	1	1	Pcs.
12	X	104573	Rubber Keytops	-	-	1	1	Pcs.
13		104575	Lens, Blue	-	-	1	1	Pcs.
14		104576	Lens, Red	-	-	1	1	Pcs.
15		104577	Lens, Yellow	-	-	1	1	Pcs.
16		104578	Lens, Green	-	-	1	1	Pcs.
17	X	104611	Nut Plate, TTPM3	-	-	1	1	Pcs.
18	X	???	TTPM3 Std Cover, top & bottom	-	-	1	-	Pcs.
18	X	104985	TTPM3 FL Cover, top & bottom	-	-	-	1	Pcs.
19	X	105044	"Cover open" switch assy.	-	-	1	1	Pcs.
?	X	104434	Output Nozzle, Cover	-	-	1	1	Pcs.
?	X	104610	Output Tray, TTPM3	-	-	1	1	Pcs.
	X	104698	Complete Packaging for TTPM3 w cover	-	-	1	1	Pcs.


17
5
3
19
4
11
6
4
19
10

COVER

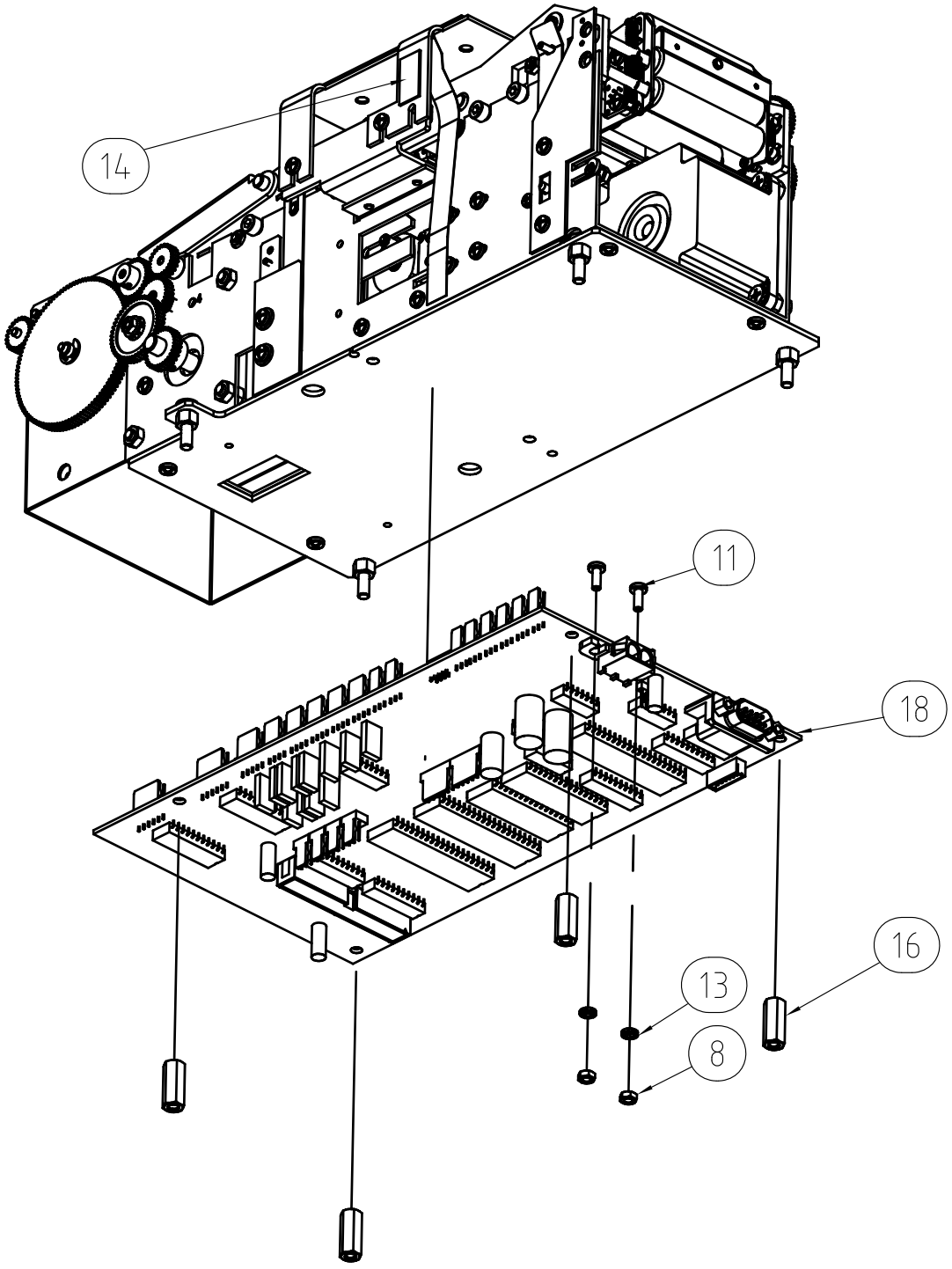
				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1	X	02349-000	Foot, SJ 5514	-	-	4	4	Pcs.
2	X	02382-000	Label	-	-	1	1	Pcs.
3		02712-000	TTPM3 tr. 1-3 LoCo/HiCo FL3	-	-	1	1	Pcs.
4		09100-168	Screw MRX-H M2x10	-	-	4	4	Pcs.
5		09100-222	Screw MRX-H M3x8	-	-	2	2	Pcs.
6		09100-224	Screw MRX-H M3x10	-	-	3	3	Pcs.
7		09100-287	Screw MRX-H M4x8	-	-	4	4	Pcs.
8		104047	Label TTPM3	-	-	2	2	Pcs.
9	X	104358	Label, Cover	-	-	1	1	Pcs.
10	X	104433	Ticket input guide	-	-	1	1	Pcs.
11	X	104472	Bracket, Input Guide	-	-	1	1	Pcs.
12	X	104573	Rubber Keytops	-	-	1	1	Pcs.
13		104575	Lens, Blue	-	-	1	1	Pcs.
14		104576	Lens, Red	-	-	1	1	Pcs.
15		104577	Lens, Yellow	-	-	1	1	Pcs.
16		104578	Lens, Green	-	-	1	1	Pcs.
17	X	104611	Nut Plate, TTPM3	-	-	1	1	Pcs.
18	X	???	TTPM3 Std Cover, top & bottom	-	-	1	-	Pcs.
18	X	104985	TTPM3 FL Cover, top & bottom	-	-	-	1	Pcs.
19	X	105044	"Cover open" switch assy.	-	-	1	1	Pcs.
?	X	104434	Output Nozzle, Cover	-	-	1	1	Pcs.
?	X	104610	Output Tray, TTPM3	-	-	1	1	Pcs.
	X	104698	Complete Packaging for TTPM3 w cover	-	-	1	1	Pcs.

6.3 Modules


1
10
9
7
3
23
20
22
5
2
4
Mag-roller 01674-005
must always be fitted
with the grove facing
UPWARDS!
17
19
21
10
6
10
15
10
12

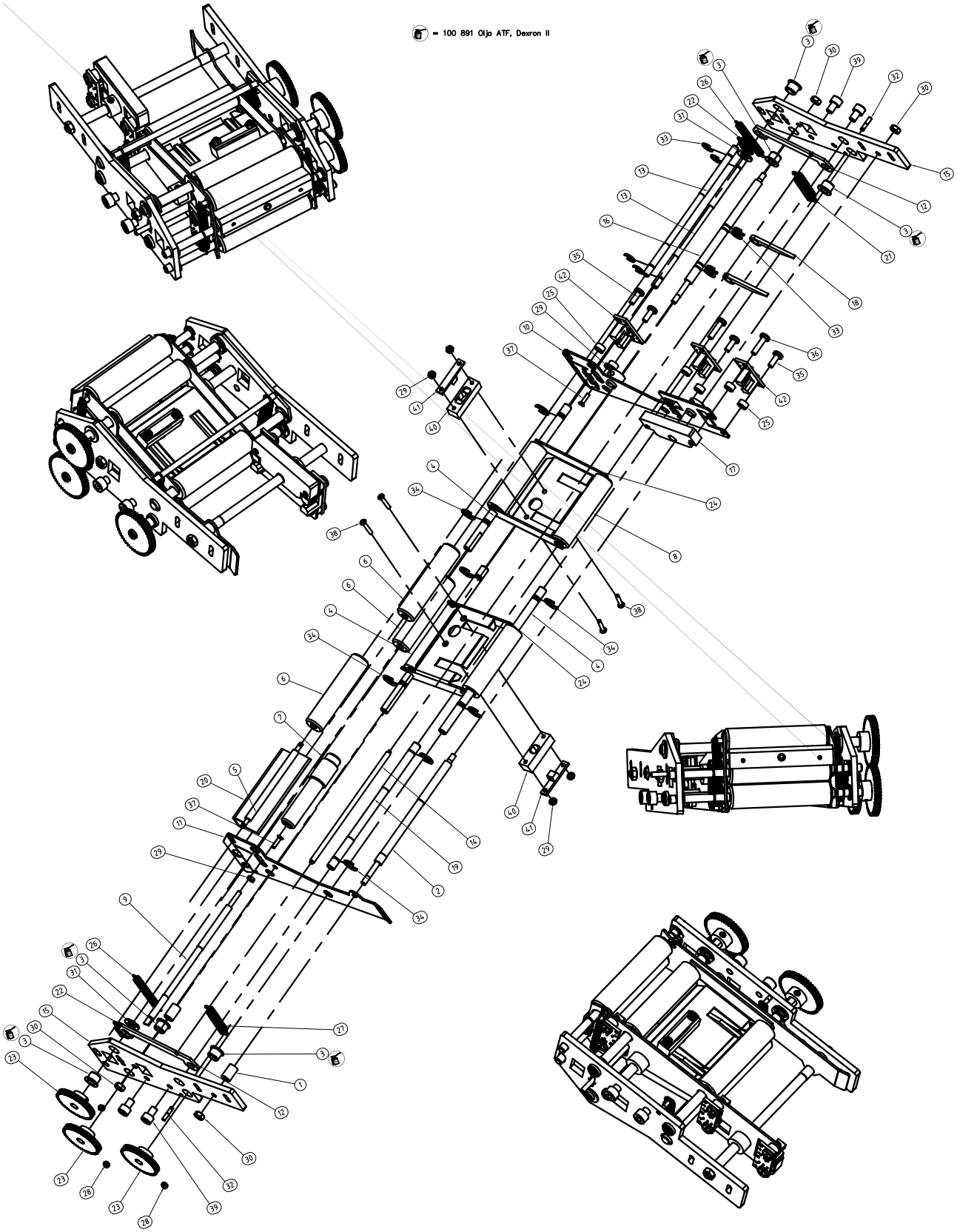
MODULES				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
3	X	01695-000	Printhead Module Assy	1	1	1	1	Pcs.
4		01721-000	Screw MRT 8.8 M2.5x8	2	2	2	2	Pcs.
5		02276-000	Washer BRB 2.7x8x0.8	2	2	2	2	Pcs.
6	X	02309-000	Spacer	1	1	1	1	Pcs.
7	X	02435-000	Shaft	1	1	1	1	Pcs.
8		09022-310	Nut M6M M3	2	2	2	2	Pcs.
13	X	101057	Lock washer	2	2	2	2	Pcs.
9	X	09045-108	Circlip RS 4	2	2	2	2	Pcs.
10		09100-220	Screw MRX-H M3x6	12	12	12	12	Pcs.
11		09100-222	Screw MRX-H M3x8	2	2	2	2	Pcs.
12	X	100970	Front Load /w Waste bin, FL3	1	1	1	1	Pcs.
14		102111	Double sided tape 4932 P 19mm	1	1	1	1	mm
15		???	Basic Module TTPM3 DB	1	-	1	-	Pcs.
15		104051	Basic Module TTPM3 DB FL	-	1	-	1	Pcs.
16	X	104179	Spacer DHS M4070x18	4	4	4	4	Pcs.
17	X	104203	Keyboard	1	1	1	1	Pcs.
18	X	104277	Controller Board TTPM3, PCA (mod 2)	1	1	1	1	Pcs.
19	X	104471	Bracket, Membrane Keypad	1	1	1	1	Pcs.
20	X	104568	Cutter Module	1	1	1	1	Pcs.
21	X	104643	Bracket	1	1	1	1	Pcs.
22	X	10819-001	Output Module, Font Load	1	1	1	1	Pcs.
23	X	10820-003	Input Module Assy, 2 Fanfold	1	1	1	1	Pcs.

Modules, continued…



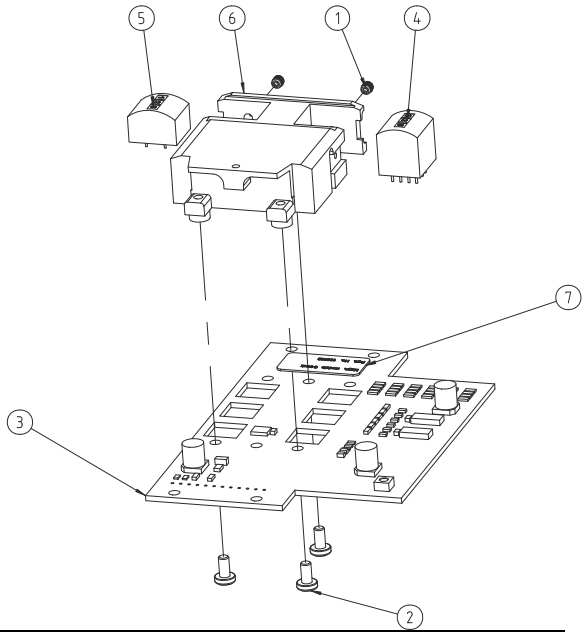
MODULES				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
3	X	01695-000	Printhead Module Assy	1	1	1	1	Pcs.
4		01721-000	Screw MRT 8.8 M2.5x8	2	2	2	2	Pcs.
5		02276-000	Washer BRB 2.7x8x0.8	2	2	2	2	Pcs.
6	X	02309-000	Spacer	1	1	1	1	Pcs.
7	X	02435-000	Shaft	1	1	1	1	Pcs.
8		09022-310	Nut M6M M3	2	2	2	2	Pcs.
13	X	101057	Lock washer	2	2	2	2	Pcs.
9	X	09045-108	Circlip RS 4	2	2	2	2	Pcs.
10		09100-220	Screw MRX-H M3x6	12	12	12	12	Pcs.
11		09100-222	Screw MRX-H M3x8	2	2	2	2	Pcs.
12	X	100970	Front Load /w Waste bin, FL3	1	1	1	1	Pcs.
14		102111	Double sided tape 4932 P 19mm	1	1	1	1	
15		???	Basic Module TTPM3 DB	1	-	1	-	Pcs.
15		104051	Basic Module TTPM3 DB FL	-	1	-	1	Pcs.
16	X	104179	Spacer DHS M4070x18	4	4	4	4	Pcs.
17	X	104203	Keyboard	1	1	1	1	Pcs.
18	X	104277	Controller Board TTPM3, PCA (mod 2)	1	1	1	1	Pcs.
19	X	104471	Bracket, Membrane Keypad	1	1	1	1	Pcs.
20		104568	Cutter Module	1	1	1	1	Pcs.
21	X	104643	Bracket	1	1	1	1	Pcs.
22	X	10819-001	Output Module Assy. Front Load	1	1	1	1	Pcs.
23	X	10820-003	Input Module Assy. 2 Fanfold	1	1	1	1	Pcs.

6.4 Input module



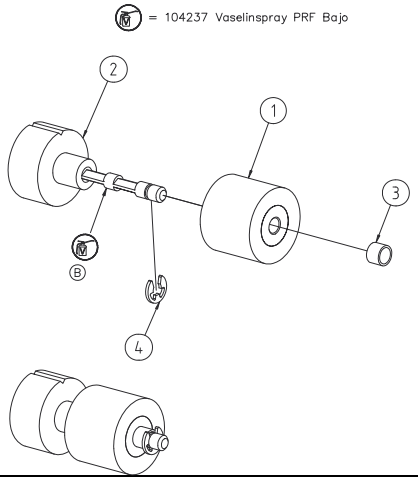
INPUT MODULE				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1	X	02205-000	Spacer DRM 3260X9	2	2	2	2	Pcs.
2	X	02206-000	Roller Shaft	1	1	1	1	Pcs.
3	X	02207-000	Bearing	6	6	6	6	Pcs.
4	X	02208-000	Feed Roller Assy.	3	3	3	3	Pcs.
5	X	02211-000	Roller Shaft	1	1	1	1	Pcs.
6	X	02215-000	Pressure Roller	3	3	3	3	Pcs.
7	X	02215-001	Roller Assy.	1	1	1	1	Pcs.
8	X	02215-004	Pressure Roller Assy.	1	1	1	1	Pcs.
9	X	02216-000	Shaft	1	1	1	1	Pcs.
10	X	02222-000	Guide, Rear Right	1	1	1	1	Pcs.
11	X	02223-000	Guide, Rear Left	1	1	1	1	Pcs.
12	X	02224-000	Link Arm	2	2	2	2	Pcs.
13	X	02225-000	Pressure Roll Shaft, Rear	2	2	2	2	Pcs.
14	X	02226-000	Pole Rod	1	1	1	1	Pcs.
15		02227-000	Side plate, rear	2	2	2	2	Pcs.
16	X	02228-000	Rocker Shaft	1	1	1	1	Pcs.
17	X	02238-000	Sensor Guide	1	1	1	1	Pcs.
18	X	02246-000	Deflector	2	2	2	2	Pcs.
19	X	02249-000	Intermediate Shaft	1	1	1	1	Pcs.
20	X	02269-000	Paper Guide, Upper	1	1	1	1	Pcs.
21	X	02271-000	Tension Spring, 0.75x6x20	1	1	1	1	Pcs.
22	X	02274-000	Tension Spring 0.6x5x15	2	2	2	2	Pcs.
23	X	02292-000	Cog Wheel, Drive Shaft, Ø26 mm	3	3	3	3	Pcs.
24	X	02308-000	Guide Plate, Rear	2	2	2	2	Pcs.
25	X	02336-000	Spacer DRM 3260x3	6	6	6	6	Pcs.
26	X	02393-000	Tension Spring SF-DFR 0,3x4x20	2	2	2	2	Pcs.
27	X	04496-000	Tension Spring, 0.6x5x20	1	1	1	1	Pcs.
28	X	09018-217	Screw SK6SS M3x3	5	5	5	5	Pcs.
29		09022-307	Nut M6M M2	6	6	6	6	Pcs.
30		09022-310	Nut M6M M3	4	4	4	4	Pcs.
31		09023-146	Washer BRB 5,3x10x1	2	2	2	2	Pcs.
32	X	09040-165	Pin SRPB 2x10	2	2	2	2	Pcs.
33	X	09045-107	Circlip RS 3.2	8	8	8	8	Pcs.
34	X	09045-108	Circlip RS 4	8	8	8	8	Pcs.
35		09100-222	Screw MRX-H M3x8	4	4	4	4	Pcs.
36		09100-226	Screw MRX-H M3x12	2	2	2	2	Pcs.
37		09101-166	Screw MFX-H M2x8	2	2	2	2	Pcs.
38		09101-170	Screw MFX-H M2x12	4	4	4	4	Pcs.
39	X	101146	Screw MC6S M4x6H 8.8	4	4	4	4	Pcs.
40	X	102035	Light Shield	2	2	2	2	Pcs.
41	X	10620-203	Sensor Assy. 240 ohm	2	2	2	2	Pcs.
42	X	10632-190	Fork Opto Sensor Assy, 190mm	3	3	3	3	Pcs.
		100891	Oil ATF, Dexron II	1	1	1	1	Pcs.

6.5 Magnetic encoding module



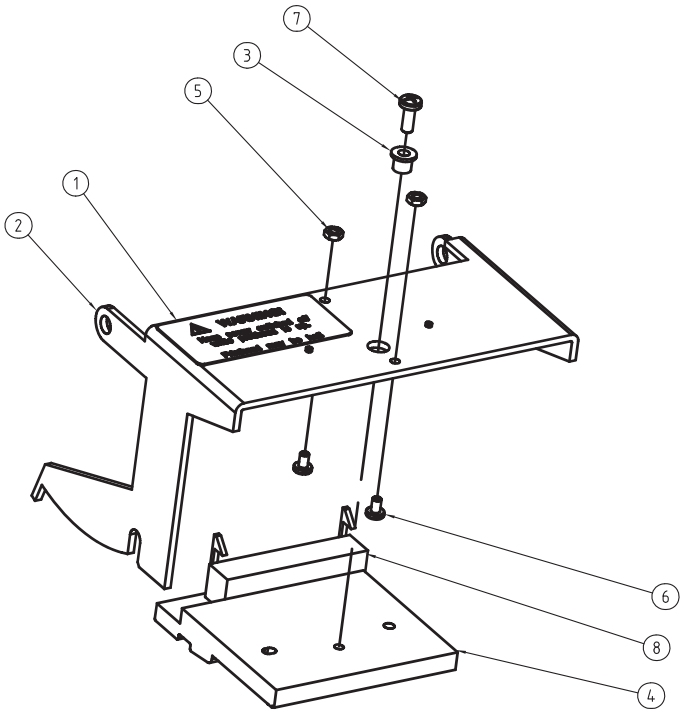
Mag. Stripe Module Assy, Tr 1-3, LC/HC				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1	X	09018-217	Screw SK6SS M3x3	2	2	2	2	Pcs.
2		09100-220	Screw MRX-H M3x6	3	3	3	3	Pcs.
3	X	102858	Mag. Amplification Board, 3 Track, TTPM3	1	1	1	1	Pcs.
4	X	103005	Write Head 3 Tr Assy	1	1	1	1	Pcs.
5	X	103006	Read Head 3 Tr Assy	1	1	1	1	Pcs.
6		103651	Magnetic head guide 3 Track	1	1	1	1	Pcs.
7		104045	Label, magnetic module 3 Track	1	1	1	1	Pcs.
8		10628-001	HiCo Mag-module cable assy	1	1	1	1	Pcs.

6.6 Pressure Roll Assy. Track 1-3



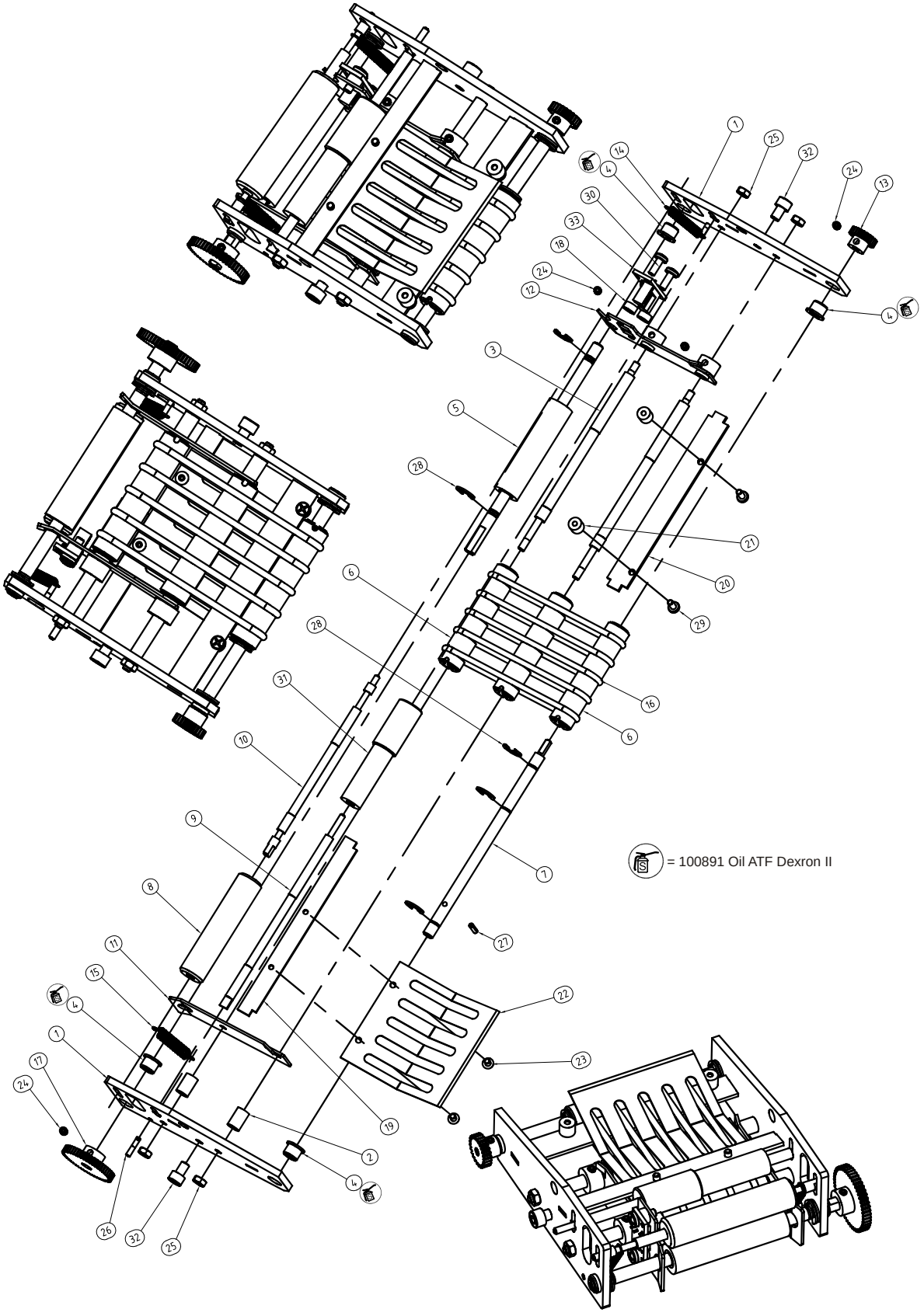
Pressure Roll Assy, Track 1-3				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1	X	02247-007	Pressure Roller, 3 Track	2	2	2	2	Pcs.
2		02289-005	Bolt, 3 Track	2	2	2	2	Pcs.
3		04679-000	Tube spacer DRM 3240x3	2	2	2	2	Pcs.
4	X	09045-106	Circlip RS 2,3	2	2	2	2	Pcs.

6.7 Printhead module assembly



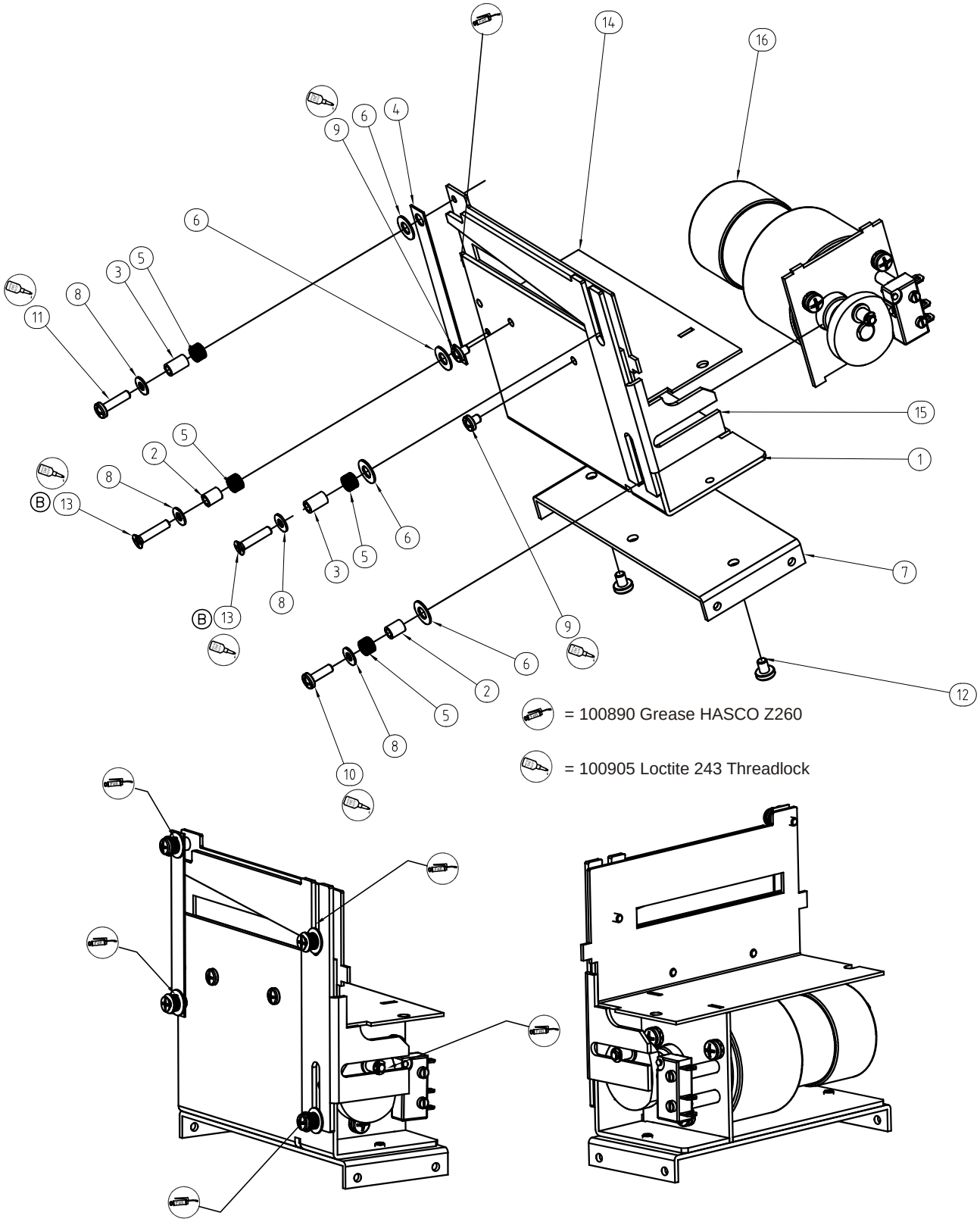
01695-000	Printhead Module Assy			Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1		01256-000	Printhead label	1	1	1	1	Pcs.
2	X	01694-900	Pressure Plate Assy	1	1	1	1	Pcs.
3	X	02254-000	Spacer, Cylindrical	1	1	1	1	Pcs.
4	X	02307-001	Thermal Print Head (Sparepart)	1	1	1	1	Pcs.
5		09022-309	Nut M6M M2,5	2	2	2	2	Pcs.
6		09100-189	Screw MRX-H M2,5x4	2	2	2	2	Pcs.
7		09100-222	Screw MRX-H M3x8	1	1	1	1	Pcs.
8	X	10634-000	Print Head Cable Assy	1	1	1	1	Pcs.

6.8 Output module

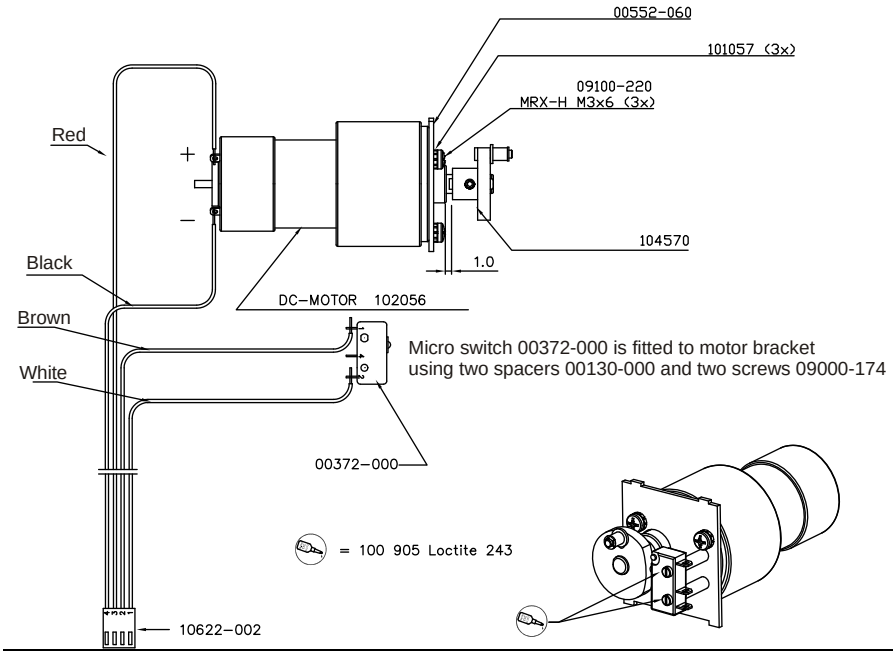


Output Module				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1		02203-000	Side plate, front	2	2	2	2	Pcs.
2		02205-000	Spacer DRM 3260X9	2	2	2	2	Pcs.
3	X	02206-000	Roller Shaft	2	2	2	2	Pcs.
4	X	02207-000	Bearing	4	4	4	4	Pcs.
5	X	02208-000	Feed Roller Assy	1	1	1	1	Pcs.
6	X	02212-000	Roller	3	3	3	3	Pcs.
7	X	02213-000	Shaft, Front	1	1	1	1	Pcs.
8	X	02215-000	Pressure Roller	1	1	1	1	Pcs.
9	X	02216-000	Shaft	1	1	1	1	Pcs.
10	X	02216-001	Roll Support Shaft	1	1	1	1	Pcs.
11		02218-000	Guide, front left	1	1	1	1	Pcs.
12	X	02219-000	Guide, Front Right	1	1	1	1	Pcs.
13	X	02261-000	Cog Wheel, Ø13 mm	1	1	1	1	Pcs.
14	X	02270-000	Tension Spring 0.5x4x15	1	1	1	1	Pcs.
15	X	02274-000	Tension Spring 0.6x5x15	1	1	1	1	Pcs.
16	X	02280-000	O-Ring 2,5x38 EPDM	5	5	5	5	Pcs.
17	X	02292-000	Cog Wheel, Drive Shaft, Ø26 mm	1	1	1	1	Pcs.
18	X	02336-000	Spacer DRM 3260x3	2	2	2	2	Pcs.
19	X	02340-000	Mounting Plate	1	1	1	1	Pcs.
20	X	02358-000	Mounting Plate	1	1	1	1	Pcs.
21	X	02359-000	Guide knob	2	2	2	2	Pcs.
22	X	02361-001	Leaf Spring	1		1		Pcs.
22	X	02361-000	Leaf Spring, front load		1		1	Pcs.
23	X	02428-000	Screw M2.5x4 Reworked for Plastic Spring	2	2	2	2	Pcs.
24	X	09018-217	Screw SK6SS M3x3	4	4	4	4	Pcs.
25	X	09022-310	Nut M6M M3	4	4	4	4	Pcs.
26	X	09040-165	Pin SRPB 2x10	2	2	2	2	Pcs.
27	X	09043-164	Roll Pin FRP 2x8	1	1	1	1	Pcs.
28	X	09045-108	Circlip RS 4	5	5	5	5	Pcs.
29		09100-191	Screw MRX-H M2,5x6	2	2	2	2	Pcs.
30		09100-222	Screw MRX-H M3x8	2	2	2	2	Pcs.
31	X	100826	Pressure Roll	1	1	1	1	Pcs.
32		101146	Screw MC6S M4x6H 8.8	2	2	2	2	Pcs.
33	X	10632-190	Fork Opto Sensor Assy, 190mm	1	1	1	1	Pcs.
		100891	Oil ATF, Dexron II	1	1	1	1	Pcs.

6.9 Cutter module

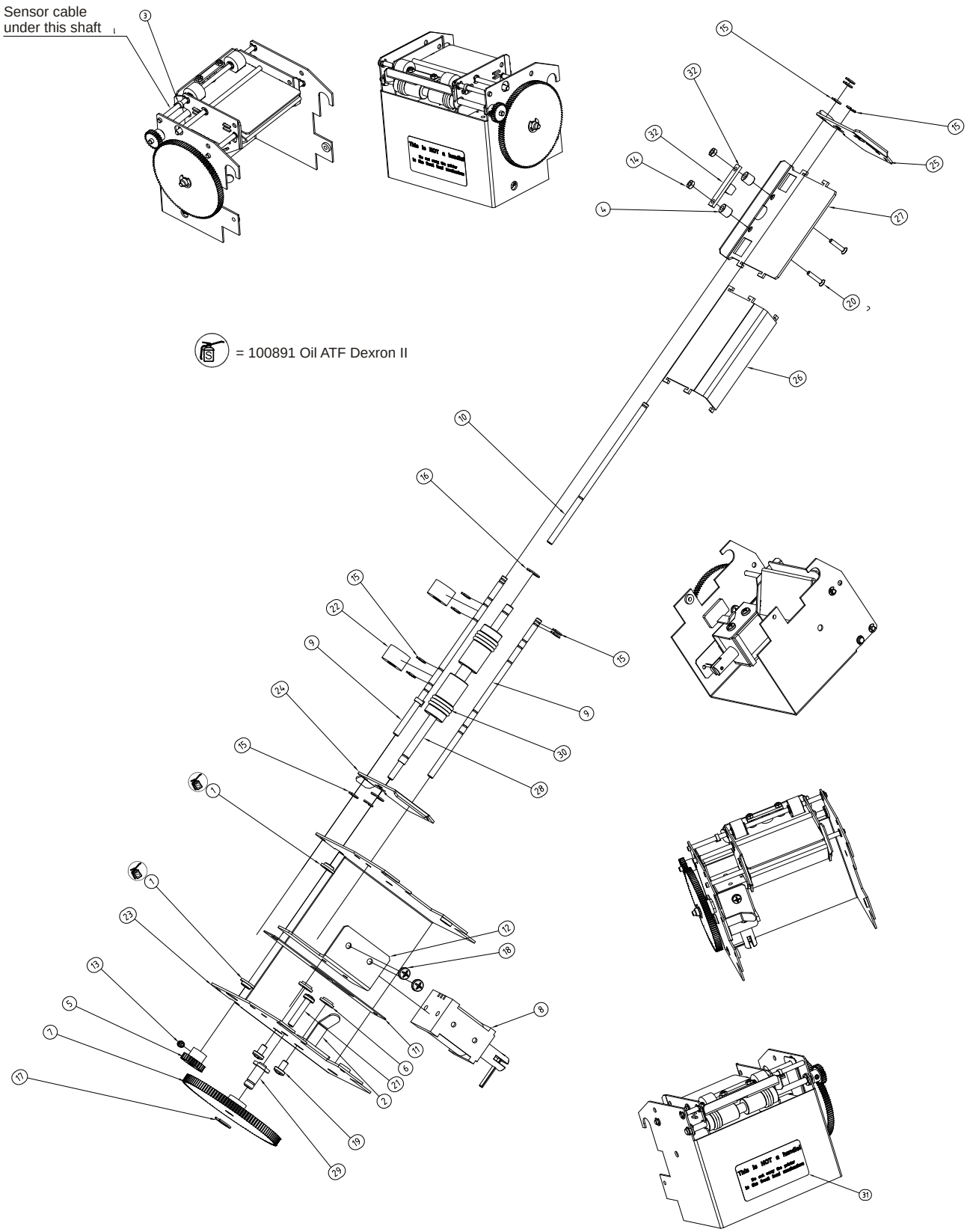


Cutter Module				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1	X	00549-060	Cutter Support (Fixed Cutter Blade)	1	1	1	1	Pcs.
2	X	00555-000	Hub 5mm	2	2	2	2	Pcs.
3	X	00555-001	Hub 6.5mm	2	2	2	2	Pcs.
4	X	00556-000	Pressure Plate	1	1	1	1	Pcs.
5	X	00557-000	Compression Spring 0.4x5x11.2	4	4	4	4	Pcs.
6	X	00559-000	Distance washer, 4x8x0.5	4	4	4	4	Pcs.
7	X	02253-000	Spacer, Cutter	1	1	1	1	Pcs.
8		09023-118	Washer BRB 2.7x6x0.5	4	4	4	4	Pcs.
9		09100-188	Screw MRX-H M2.5x3	2	2	2	2	Pcs.
10		09100-193	Screw MRX-H M2.5x8	1	1	1	1	Pcs.
11		09100-195	Screw MRX-H M2.5x10	1	1	1	1	Pcs.
12		09100-218	Screw MRX-H M3x4	2	2	2	2	Pcs.
13		100479	Screw MFX-H M2,5x12	2	2	2	2	Pcs.
14		104493	Plate, knife support	1	1	1	1	Pcs.
15	X	104494	Cutter blade, moving	1	1	1	1	Pcs.
16	X	104569	Cutter motor assy	1	1	1	1	Pcs.



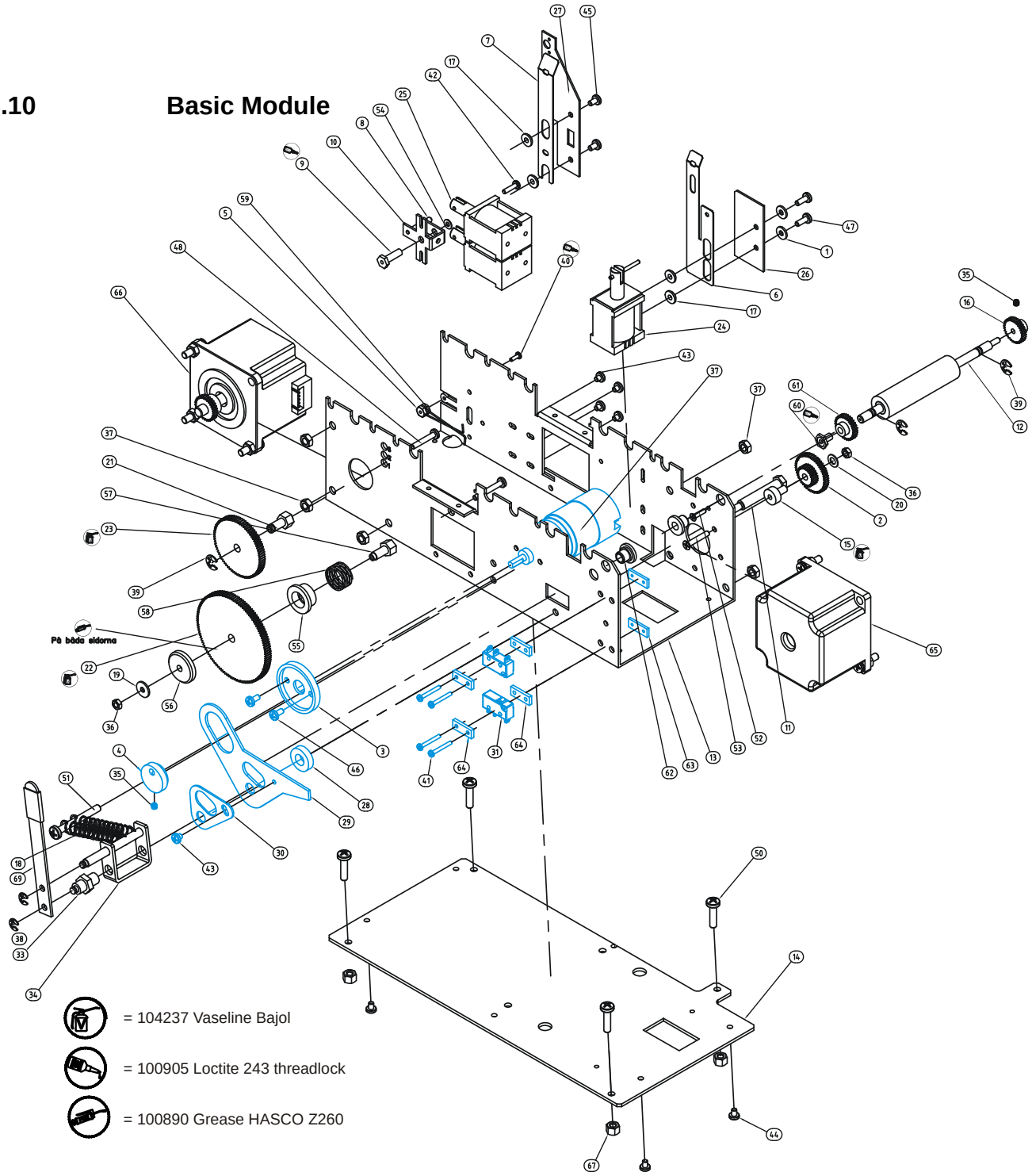
104569 Cutter motor assy				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
	X	00130-000	Spacer DRM 2240x12	2	2	2	2	Pcs.
	X	00372-000	Micro Switch, Gold Plated	1	1	1	1	Pcs.
		00552-060	Motor bracket	1	1	1	1	Pcs.
		09000-174	Screw MCS-H M2x20	2	2	2	2	Pcs.
		09100-220	Screw MRX-H M3x6	3	3	3	3	Pcs.
		101057	Lock washer	3	3	3	3	Pcs.
	X	102056	DC Motor RHV 158.12.30	1	1	1	1	Pcs.
		104570	Camwheel assy. cutter	1	1	1	1	Pcs.
	X	10622-002	Cable assy. Cutter Motor	1	1	1	1	Pcs.

Front load module



Front Load Module				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1	X	00251-000	Bearing, Plastic		2		2	Pcs.
2	X	00358-000	Cable Clamp		1		1	Pcs.
3		01268-000	Tie-Wrap, 71×1.8mm		1		1	Pcs.
4		01332-000	Tube spacer DRM 2550x5		2		2	Pcs.
5	X	02261-000	Cog Wheel, Ø13 mm		1		1	Pcs.
6	X	02263-001	Hub		2		2	Pcs.
7	X	02290-000	Cog 'wheel, Ø58 mm		1		1	Pcs.
8	X	02303-027	Solenoid Assy.		1		1	Pcs.
9	X	02369-000	Shaft		2		2	Pcs.
10	X	02370-000	Shaft		1		1	Pcs.
11		02375-000	Link, solenoid		1		1	Pcs.
12		02423-000	Solenoid support		1		1	Pcs.
13	X	09018-217	Screw SK6SS M3x3		1		1	Pcs.
14		09022-307	Nut M6M M2		2		2	Pcs.
15	X	09045-106	Circlip RS 2,3		12		12	Pcs.
16	X	09045-107	Circlip RS 3.2		2		2	Pcs.
17	X	09045-108	Circlip RS 4		1		1	Pcs.
18		09100-217	Screw MRX-H M3x3		2		2	Pcs.
19		09100-219	Screw MRX-H M3x5		2		2	Pcs.
20		09101-168	Screw MFX-H M2x10		2		2	Pcs.
21		100050	Screw MRX-H M3x16		1		1	Pcs.
22	X	100349	Pressure Roller Assy.		2		2	Pcs.
23	X	100957	Frame plate, FL3		1		1	Pcs.
24		100958	Side plate, right		1		1	Pcs.
25		100959	Side plate, left		1		1	Pcs.
26		100960	Paper guide, lower		1		1	Pcs.
27		100961	Paper guide, upper		1		1	Pcs.
28		100967	Feed Shaft		1		1	Pcs.
29		100968	Hub shaft		1		1	Pcs.
30	X	101032	O-ring 8 x 1,6 EPDM		6		6	Pcs.
31		104934	Label "This is NOT a handle"		1		1	Pcs.
32	X	10620-400	Opto Sensor Assy.		1		1	Pcs.

6.10 Basic Module



Basic Module				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
1		00359-000	Washer BRB 3.2x8x1	2	2	2	2	Pcs.
2	X	00375-000	Cog Wheel	1	1	1	1	Pcs.
3	X	00628-000	Cutter Arm Support	0	1	0	1	Pcs.
4	X	00629-000	Cam Wheel	0	1	0	1	Pcs.
5	X	01780-000	Guide, Hairpin Spring	1	1	1	1	Pcs.
6	X	02217-000	Hook	1	1	1	1	Pcs.
7	X	02230-000	Pull Arm	1	1	1	1	Pcs.
8		02233-000	Shaft	1	1	1	1	Pcs.
9	X	02234-000	Hub Nut	1	1	1	1	Pcs.
10	X	02235-000	Rocker Arm	1	1	1	1	Pcs.
11	X	02240-000	Shaft Screw	1	1	1	1	Pcs.

Basic Module				Quantity				
				OEM		Desktop		
Pos.	SP	Part No.	Designation	Std	FL	Std	FL	
12	X	02242-002	Platen Assy	1	1	1	1	Pcs.
13	X	02244-000	Fastening Plate	1	1	1	1	Pcs.
14	X	02245-000	Bottom Plate	1	1	1	1	Pcs.
15	X	02257-000	Hub	1	1	1	1	Pcs.
16	X	02259-000	Cog Wheel, Platen	1	1	1	1	Pcs.
17	X	02263-001	Hub	4	4	4	4	Pcs.
18	X	02273-000	Tension Spring 0.75x8x25	2	2	2	2	Pcs.
19		02277-000	Washer BRB 3.2x10x1	1	1	1	1	Pcs.
20		02279-000	Washer BRB 4,3x8x0,5	1	1	1	1	Pcs.
21	X	02288-001	Bolt	1	1	1	1	Pcs.
22	X	02290-000	Cog 'wheel, Ø58 mm	1	1	1	1	Pcs.
23	X	02291-000	Cog Wheel, Rear, Ø39 mm	1	1	1	1	Pcs.
24	X	02303-013	Solenoid assy. with Long Pin	1	1	1	1	Pcs.
25	X	02303-015	Solenoid assy. no spring	2	2	2	2	Pcs.
26	X	02327-000	Cover Plate	1	1	1	1	Pcs.
27		02328-000	Protection plate	1	1	1	1	Pcs.
28	X	02353-000	Spacer	1	1	1	1	Pcs.
29	X	02354-000	Lift Arm	1	1	1	1	Pcs.
30	X	02425-000	Adjustment Plate	1	1	1	1	Pcs.
31	X	02426-000	Micro Switch Assy.	0	1	0	1	Pcs.
32	X	02427-000	Lift Motor Assy.	0	1	0	1	Pcs.
33	X	02436-000	Hub Nut	1	1	1	1	Pcs.
34	X	02438-000	Pull Arm Assy.	1	1	1	1	Pcs.
35	X	09018-217	Screw SK6SS M3x3	2	2	2	2	Pcs.
36		09022-310	Nut M6M M3	2	2	2	2	Pcs.
37		09022-312	Nut M6M M4	7	7	7	7	Pcs.
38	X	09045-107	Circlip RS 3.2	2	2	2	2	Pcs.
39	X	09045-108	Circlip RS 4	3	3	3	3	Pcs.
40		09100-121	Screw MRX-H M2x6	1	1	1	1	Pcs.
41		09100-172	Screw MRX-H M2x16	4	4	4	4	Pcs.
42		09100-195	Screw MRX-H M2.5x10	1	1	1	1	Pcs.
43		09100-217	Screw MRX-H M3x3	5	5	5	5	Pcs.
44		09100-218	Screw MRX-H M3x4	4	4	4	4	Pcs.
45		09100-219	Screw MRX-H M3x5	2	2	2	2	Pcs.
46		09100-220	Screw MRX-H M3x6	2	2	2	2	Pcs.
47		09100-222	Screw MRX-H M3x8	2	2	2	2	Pcs.
48		09100-229	Screw MRX-H M3x18	1	1	1	1	Pcs.
49		09100-231	Screw MRX-H M3x22	1	1	1	1	Pcs.
50		09100-293	Screw MFX-H M4x16	4	4	4	4	Pcs.
51		09100-301	Screw MRX-H M4x35	1	1	1	1	Pcs.
52		09101-195	Screw MFX-H M2,5x10	1	1	1	1	Pcs.
53		09101-229	Screw MFX-H M3x18	1	1	1	1	Pcs.
54		100029	Washer DIN 125A M2.5	1	1	1	1	Pcs.
55	X	100839	Cog Wheel Brake Pad	1	1	1	1	Pcs.
56	X	100862	Cog Wheel Brake Disc	1	1	1	1	Pcs.
57	X	100864	Bolt	1	1	1	1	Pcs.
58	X	100889	Compression Spring SS 1x15x12	1	1	1	1	Pcs.
59		102040	Hairpin spring	1	1	1	1	Pcs.
60		102322	Hub	1	1	1	1	Pcs.
61		102323	Cog Wheel D16	1	1	1	1	Pcs.
62	X	102359	Bearing	2	2	2	2	Pcs.
63	X	102360	Nut Plate M2x9.5	2	2	2	2	Pcs.
64	X	102361	Washer	4	4	4	4	Pcs.
65		102518	Stepper Motor Assy.	1	1	1	1	Pcs.
66		102868	Stepper Motor Assy.	1	1	1	1	Pcs.
67		104178	Spacer DHS M4070x5	4	4	4	4	Pcs.
69		104190	Printhead release arm	1	1	1	1	Pcs.

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